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Field Evaluation of Hopper Dredge Overflow for the Delaware River

Jerry L. Miller, Michael R. Palermo, and Thomas W. Groff

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Contents

Preface
1—Introduction
Background1Study Location2Purpose and Scope4
2—Field Monitoring
Dredging Equipment and Sampling Operations5Dredge Operation Variables5Collection of In Situ Sediment and Site Water5Hopper Inflow Monitoring6Hopper Contents Monitoring6Hopper Overflow Monitoring6Plume Monitoring7Sedimentation Assessment8
Bioassay
 3—Data Analysis
In Situ Sediment and Background Water Samples
Hopper Inflow 17 Coarse-grained site 17 Fine-grained site 17
Hopper Contents 17 Coarse-grained site 17 Fine-grained site 17
Hopper Overflow 22 Coarse-grained site 22

Fine-g	grained site
Plume Mo	onitoring
Coars	e-grained site
Fine-g	grained site
Sediment	ation Results
Coars	e-grained site
Fine-g	grained site
Standard	Elutriate Tests
Coars	e-grained site
Fine-g	grained site
Technical	Findings of a 96-hr Water Column Bioassay 34
Coars	e-grained site
Fine-g	grained site
4—Summary	and Conclusions
Appendix A:	Delaware River Sediment and Water Quality Analysis (Coarse- and Fine-Grained Sites)
Appendix B:	Plume Study Field Activities and Data Results B1
Appendix C:	Detection of Short-Term Sedimentation During Hopper Dredging Operations in Delaware Bay and the Delaware River
Appendix D:	Summary of Technical Findings: 96-hr Bioassay with <i>Mysidopsis bahia</i> and <i>Menidia beryllina</i> D1
SF 298	

List of Figures

Figure 1.	Dredge McFarland 1
Figure 2.	Locations of the lower and upper hopper dredge overflow test study sites
Figure 3.	Hopper loading at coarse-grained site 9
Figure 4.	Hopper loading at fine-grained site
Figure 5.	Range of gradation curves from in situ sediment collected at the coarse-grained site
Figure 6.	Range of gradation curves from in situ sediment collected at the fine-grained site
Figure 7.	Range of gradation curves from hopper inflow at the coarse-grained site

Figure 8.	Range of gradation curves from hopper inflow at the fine-grained site
Figure 9.	Hopper contents—solids concentrations of coarse-grained material
Figure 10.	Hopper contents—solids concentrations of fine-grained material
Figure 11.	Range of gradation curves from hopper overflow at the coarse-grained site
Figure 12.	Range of gradation curves from hopper overflow composites at the coarse-grained site
Figure 13.	Range of gradation curves from hopper overflow at the fine-grained site
Figure 14.	Range of gradation curves from hopper overflow composites at the fine-grained site
Figure 15.	Plume solids concentrations at surface
Figure 16.	Plume solids concentrations at middepth 28
Figure 17.	Plume solids concentrations at bottom
Figure 18.	Plume solids concentrations at coarse-grained site 29
Figure 19.	Plume solids concentrations at surface
Figure 20.	Plume solids concentrations at middepth 31
Figure 21.	Plume solids concentrations at bottom
Figure 22.	Plume solids concentrations at fine-grained material 32

List of Tables

Table 1	Delaware River Coarse- and Fine-Grained Loading Data .	0
Table 2	Delaware River Coarse-Grained Site, Summary of Sediment and Water Quality Data	13
Table 3	Delaware River Fine-Grained Site, Summary of Sediment and Water Quality Data	35

Preface

This report describes the potential economic benefits and potential environmental effects from overflow dredging in the lower Delaware River. This work was conducted by the Environmental Laboratory (EL), U.S. Army Engineer Research and Development Center (ERDC), Vicksburg, MS. Funding for the study was provided by the U.S. Army Engineer District, Philadelphia.

This report was written by Mr. Jerry L. Miller, Ecological Resources Branch, Ecosystem Evaluation and Engineering Division (EEED), EL, Dr. Michael R. Palermo, Environmental Processes and Engineering Division (EPED), EL, and Mr. Thomas W. Groff, Operations Division, U.S. Army Engineer District, Philadelphia. Technical review of this report was provided by Messrs. Thomas R. Patin and Jerry J. Pasquale.

This study was conducted under the direct supervision of Dr. Michael F. Passmore, Chief, Ecological Resources Branch, Dr. Dave J. Tazik, Chief, EEED, and under the general supervision of Dr. Edwin A. Theriot, Director, EL.

At the time of publication of this report, Dr. James R. Houston was Director of ERDC, and COL John W. Morris III, EN, was Commander and Executive Director.

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1 Introduction

Background

The U.S. Army Engineer District (USAED), Philadelphia, has an extensive navigation responsibility throughout the Delaware River Basin. Maintenance dredging averages about $3,000,000 \text{ m}^3$ ($4,000,000 \text{ yd}^3$) of material annually of which about 191,000 m³ (250,000 yd³) is removed by the Hopper Dredge *McFarland* (Figure 1). The dredging provides a safe navigation channel, which supports the shipping of nearly 136,000,000 metric tons (150,000,000 short tons) of cargo per year.



Figure 1. Dredge McFarland

Hopper dredges, like the *McFarland*, are self-propelled ships equipped with propulsion machinery, hoppers for dredged material storage, and dredge pumps. Dredged material is hydraulically raised through trailing dragarms in contact with the channel bottom and is discharged into the hoppers. The material is then held in the hoppers until placed at the disposal site. Hopper dredges are often loaded past the point of overflow for economic reasons. As the hopper is filled, dredged material is stored in the hopper bins until overflow begins. The density of the hopper contents is increased by allowing the low-density supernatant to overflow back into the waterway. As the low-density supernatant overflows, the average density of the hopper contents increase. Thus, more material can be transported per trip to the disposal site or facility. This practice of overflowing hoppers to achieve a high-density load is referred to as economic loading.

In considering overflow, there is normally a tradeoff between the potential economic benefits and potential environmental effects. Overflow results in increased water column turbidity, and supernatant solids may be redeposited near the dredge site. Also, if sediments are contaminated, the overflow may result in some release of contaminants to the water column. Therefore, the relationship between dredge production, density of the hopper load, and the rate of material overflow are important variables in maximizing the efficiency of the dredging operation while minimizing contaminant release.

State environmental resource agencies have expressed concerns regarding the turbidity, sedimentation of suspended solids, and potential contaminant release from overflow resulting from the presence of oyster seedbeds in some areas near the navigation channel. Currently, overflow is not permitted at any location within the Delaware River Basin.

There is a significant potential for economic benefits to overflow in certain reaches of the project if the impact resulting from overflow is environmentally acceptable. The USAED, Philadelphia, therefore, initiated an evaluation of the practice of overflow for select portions of the Delaware River and Delaware Bay to determine if overflow for those reaches can meet applicable water quality standards. The District requested assistance from the Environmental Laboratory (EL), U.S. Army Engineer Research and Development Center (ERDC), Vicksburg, MS, in conducting a study of overflow in the Delaware River/ Delaware Bay system.

This study helped to quantify the degree of turbidity, suspended solids, and contaminant release generated by overflow and the dispersion of the overflow plume in reaches near the oyster seedbeds. Reaches in the Delaware River Basin where overflow would be acceptable were determined.

Study Location

Two test areas were selected in the Delaware River in conjunction with recommendations from the New Jersey Department of Environmental Protection (NJDEP) and Delaware's Department of Natural Resources and Environmental Control (DNREC) (Figure 2). These areas were selected on the basis of historical knowledge of the Delaware Basin and known locations of material types (sand, silt, and clay) within the river. The first site



Figure 2. Locations of the lower and upper hopper dredge overflow test study sites

was located at the Brandywine range (Lower Study Site) in the lower Delaware Bay (mile marker 17.7) and was selected to represent a predominantly coarse-grained material. The second site was located at the Deepwater Point range (Upper Study Site) just below the Delaware Memorial Bridge (mile marker 67.9) and was selected to represent a typical fine-grained material. All the proposed activities for the study were reviewed with members of the Delaware River Fish Cooperative Technical Committee prior to submitting applications to the respective regulatory offices for Water Quality Certification (WQC) approvals.

Purpose and Scope

The purpose of this study was to evaluate the efficiency of economic loading of a hopper dredge and the physical and chemical characteristics of hopper overflow for the Delaware River dredging project. The study was designed to evaluate the effectiveness of increasing the hopper load during overflow and to determine the physical and chemical characteristics of the overflow into the Delaware River.

The study involved the following activities:

- *a*. Loading data collection measurements of the load in the hopper at and following overflow.
- *b*. Characterization of in situ sediment physical and chemical analysis including elutriate testing.
- c. Hopper inflow monitoring physical and chemical analysis.
- d. Hopper contents monitoring physical and chemical analysis.
- e. Hopper overflow monitoring physical and chemical analysis.
- *f*. Plume monitoring physical and chemical analysis; and in situ turbidity measurements.
- g. Sedimentation assessment photo imagery of recent sediment deposits.
- *h*. Elutriate and Bioassay Testing elutriate tests and acute toxicity testing on a fish and a crustacean species were performed for purposes of prediction and potential effects of overflow for the entire project.

These activities provided information to characterize the in situ sediment, hopper inflow as pumped from the draghead, and hopper overflow. Measurement of the material density in the hopper, solids concentration, particle size, and rate of overflow provided information for the development of hopper filling relationships. Elutriate tests were performed to predict the contaminant release back into the water column. These test results were also compared with the data results of the hopper overflow for consistency in sample analysis. Samples taken from the water column defined the relative difference between sediment resuspended by the draghead and that caused by overflow. One overflow and one nonoverflow dredge pass or overflow event was monitored in each of the two reaches of the river.

2 Field Monitoring

Dredging Equipment and Sampling Operations

The Dredge *McFarland* was used on September 15 and 16, 1998, to dredge in the two test reaches. The field sampling and monitoring was conducted during representative hopper operations with and without overflow in both reaches.

The tasks described in this technical report were the responsibility of the ERDC, Vicksburg, MS, with support provided by the USAED, Philadelphia. The USAED, Philadelphia, provided the necessary boats and personnel to assist the ERDC in all field monitoring, in situ data collection, and sample collection. ERDC staff members were present at the dredging site during the monitoring effort to direct the field efforts and assist in data and sample collection. ERDC performed all subsequent laboratory testing of samples, data analysis, and report preparation.

Dredge Operation Variables

At a minimum, it was necessary to have a complete record of the dredge operating variables during the monitoring and sampling periods. In addition to these standard dredge data, the time and duration of overflow during sampling events were recorded along with loading charts using the automated charts of the *McFarland*.

Collection of In Situ Sediment and Site Water

On September 14, in situ sediment and site water were collected at the two study sites prior to dredging to provide samples for sediment and water characterization and elutriate testing. Fifteen (15) sediment samples were taken at even intervals in a transect along which the dredge was expected to pass during overflow and nonoverflow conditions. Samples were collected with a grab-type apparatus. A 200-ml portion of the sample was

retained from each of the 15 samples for water content and density analysis (15 individual analyses). The remaining material of the 15 samples, were composited for sediment and water characterization and elutriate tests.

Composited samples were also obtained for elutriate testing from three sampling locations. Thus, five buckets and fifteen 250-ml bottles of sediment were obtained and shipped to the ERDC to characterize the in situ sediment. The five buckets of sediment were further composited to produce a single uniform composite. From this composite, standard elutriate testing was performed using the site water to prepare the samples. Density (or water content) estimates were made on all 15 samples, and the other physical and chemical tests were performed on the composite sediment sample.

Hopper Inflow Monitoring

The sediment slurry that was picked up by the draghead and transported through the hydraulic suction line was sampled as it entered the hopper (in 3-min intervals during filling and overflow). Grab samples at the inflow port(s) were collected and analyzed for solids concentration and appropriately composited and analyzed for grain size distribution, particle size distribution of fines, and chemical concentrations. The composited samples represented sediment from five equal time intervals during hopper loading.

Hopper Contents Monitoring

As material is pumped into the hoppers, a layer of high-density settled material is formed in the lower portion of the hopper with a layer of water with suspended material in the upper portion of the hopper. The vertical distribution of suspended material density or concentration in the upper portion of the hopper was measured. These data, in conjunction with overflow concentration data, can be used to determine when an economic load is achieved and when material density in the hopper is at a maximum. A second use for hopper vertical density measurements is to examine the potential for equipment modification, such as introducing settling tubes to enhance settling rates of solids in hopper bins. Hopper sampling at three depths was taken at the beginning of overflow and at the end of overflow. Three locations in the hopper were sampled.

Hopper Overflow Monitoring

Because of the variability in solids concentration at the hopper overflow, 40 samples were taken to determine suspended solids for each overflow

period. Samples were composited for chemical contaminant determination of chemical concentrations, grain size, particle size distribution of fines, and toxicity testing.

Plume Monitoring

Plume monitoring provided an evaluation of the amount of sediment in the water column resuspended by the operating draghead vs. the amount of sediment contributed by overflow. Data on plume concentrations as a function of distance and time provided information to determine an appropriate buffer distance from the oyster beds in which overflow should be restricted. Differentiation between the magnitude of sediment plumes caused by the draghead and plumes from overflow materials required monitoring both overflow and nonoverflow periods. Monitoring one dredge pass without overflow and one dredge pass with overflow was the minimal plume monitoring effort. To reduce the variability of results between tests, the dredge was required to be moving in the same direction relative to the current flow for every overflow and nonoverflow test monitored. Plume monitoring also provided information on contaminant dispersion in the water column.

Plume monitoring required two boats. One boat was positioned behind the hopper dredge in its path immediately after it passed and began sampling the water column to evaluate the rate of settling of the plume. The other boat towed a turbidimeter (in situ-type probe) across the plume to give information on lateral plume dispersion. Thus, the duration and geometry of the plume could be estimated. Both boats in the monitoring area carried out background sampling immediately before the dredging began.

Lateral plume dispersion measurements were made at middepth by locating the turbidimeter probe at the midpoint of the water column. Background turbidity was extensively measured. The boat towing the turbidimeter monitored distance from the dredge, using a range finder and hand bearing compass, and distance from the anchored sample boat. The whole plume was traversed, going outside of the plume at each extreme of the turbidity plume.

While the mobile boat was measuring lateral plume dispersion, the anchored boat measured decay of the plume as it settled through the water column. Water samples were taken at the surface (less than 1 m deep), middepth, and near bottom (within 1 to 2 m of the bottom). Fifteen samples at three depths for a 50-min period were taken to characterize background total suspended solids (TSS) conditions, and about 30 samples at three depths in a 30-min time frame were taken to characterize the overflow plume after the dredging pass. The latter sampling protocol was also used for the nonoverflow sediment plume measurements.

TSS was measured for all plume samples and a compositing scheme was used to reduce the number of samples for chemical analysis. Three composite samples for the plume monitoring were obtained (one at each of the three depths) by mixing portions of the samples taken at all three depths over one-third of the plume monitoring effort. Chemical analysis included heavy metals, polychlorinated biphenyls (PCBs) and polycyclic aromatic hydrocarbons (PAHs) and provided data on potential contamination of the water column by the dredging operation.

Sedimentation Assessment

One difficulty in assessing potential impacts of sedimentation resulting from hopper overflow is detection of thin overburdens in habitats in the vicinity of the dredging operation. Although thin (<5 cm) overburdens could have detrimental impacts, for example on the settlement and attachment of oyster larvae, this exceeds the detection limits of most conventional techniques. One method effective in measuring sedimentation events of less than 1 cm is sediment-profiling imagery using a sediment profile camera. This technique involves insertion of a prism into the substrate through which images of the sediment-water interface are obtained. The images provide rapid, accurate measures of recent sedimentation, particularly if the overburden sediments are dissimilar from the ambient substrate. The images also provide indications of impacts to benthic communities (e.g., distribution and position of annelid worms and bivalve mollusks relative to the relict and overburden surface) and changes in physical/chemical conditions of the sediment (e.g., altered redox potential discontinuity, evidence of hypoxia). This camera system is unaffected by ambient turbidity. An attached plan-view underwater camera also provided photographs at the sediment profile stations.

The sediment profiling camera system was deployed at the Delaware River overflow operation site. Because the area is tidally influenced, stations were occupied both up and down current from the dredging project. Stations were allocated to gather information for transects across several cross sections of the river reach potentially influenced by overflow, including any charted oyster bars.

Bioassay

Samples were taken at the hopper overflow for use in a 96-hr water column bioassay. This portion of the study will help in determining the possible biological effects of water column exposure to Delaware River sediment.

3 Data Analysis

Hopper Loading Characteristics

Coarse-grained site

The loading data provided by the USAED, Philadelphia, for the coarsegrained site are shown in Figure 3, and the summary data for the load increase can be found in Table 1. Loading volumes are based on calculations using historical density data in the area being dredged.



Figure 3. Hopper loading at coarse-grained site

It took 9 min of dredging to reach overflow status. During the first 9 min, material increased at a rate of 112.4 m³/min (147 yd³/min). Once overflow began, the increase in material loading was determined to be 22.9 m³/min (30 yd³/min). Overflow continued for 57 min with a gain of 130 percent realized. At the end of the overflow period, the hopper was full of sediment.

Table 1 Delaware	River Coars	se- and Fine	e-Grained L	oading Data	a		
	Coarse-Gra	ined Material			Fine-Grain	ed Material	
Time, min	Loading, m ³		Loading, yd ³	Time, min	Loading, m ³		Loading, yd ³
0 9 66	0 1,009 Begin ov 2,324 Overflow	rerflow (9 min) / (57 min)	1,320 3,039	0 13 34 0 13 18	0 871 Begin ov 1,031 Overflow 0 871 Begin ov 961 Overflow	erflow (13 min) (21 min) erflow (13 min) (5 min)	1,139 1,348 1,139 1,257
Time, min	Loading m ³ /min	Losing to Overflow m ³ /min	% Gain	Time, min	Loading m ³ /min	Losing to Overflow m ³ /min	% Gain
9 57	112.4 22.9	89.5	130.3	13 21 5	67.0 7.6 18.0	59.4 49.0	18.4 10.3

Fine-grained site

The loading diagram for the fine-grained site is shown in Figure 4 and the summary data for the load increase can be found in Table 1. For this site, the dredge operated 13 min before overflow began. During this first 13 min of dredging, material increased at a rate of 67.0 m³/min (87 yd³/min). Once overflow began, the increase in material loading was determined to be 7.6 m³/min (10 yd³/min). Overflow continued for 21 min with a gain of 18 percent realized. The percent gain realized for the coarse reach was interpolated for 21 min and was 50 percent, so that a comparison could be made during the same time frame between the two sites.

Economics

These results are consistent with the material composition at the two sites. The coarse-grained site would be expected to settle at a more rapid rate, therefore, showing a significant gain in material. Whereas, the finegrained material would tend to stay in suspension, resulting in most of the sediment being discharged out the overflow. Because of the large amount of gain realized at the coarse-grained site, a rate of return of about 50 to 60 percent may be realized based on the amount of material retained in the hopper and the round-trip travel time required to the dump site. Basically, for every 3 days of nonoverflow dredging, approximately the same amount of material can be removed by allowing overflow dredging in a 2-day period. This percent return also assumes that the material being discharged in the overflow settles in the navigation channel and will require redredging the area. At the fine-grained site, the rate of return is negligible because of the small gain in load achieved. This is also based on round-trip travel time required to the pump-out site, material being discharged in the overflow settling in the navigation channel and requiring redredging of the area. If



Figure 4. Hopper loading at fine-grained site

redredging the area at either site is not required, then the percent return estimated at those sites may increase.

In Situ Sediment and Background Water Samples

Coarse-grained site

The composited sediment samples at the coarse-grained site show the proposed dredged area to average 97 percent sand (Figure 5). The range was less than 1 percent \pm of the average value (96.5 to 97.7 percent). Background water chemical concentrations were compared with the contaminants of concern as listed in the acute marine objectives for toxic pollutants for the protection of aquatic life in the Delaware River estuary. This information can be found in the Delaware River Basin Commission West Trenton, New Jersey, Administrative Manual-Part III, Water Quality Regulations, October 23, 1996. The only parameter above the standard was background dissolved copper (Table 2). The standard for copper is 5.3 µg/l, and the background value was 13 µg/l. The water quality and sediment data for the coarse-grained site can be found in Appendix A.

Fine-grained site

The composited sediment samples at the fine-grained site show the proposed dredged area to average 33 percent sand (Figure 6). The range for sand was from 18 to 50 percent. Background water concentrations for the contaminants of concern were all below the more stringent of the freshwater or marine stream quality objectives for acute toxicity standards as





Efficient Supended Solids Concentration - 135.000 mg/l Addition and a supervised solids concentration - 135.000 mg/l Addition and a supervised solids concentration - 135.000 mg/l Addition and a supervised solids concentration - 135.000 mg/l Addition and a supervised solid and	Efficient Suspended Solids Concentration - 135,000 mg/l Parametry Name Output Parametry Name Name<	Jelaware Kiver Coarse-Gra	lined Site, Summ	lary ur acu	Iment and water	quality Data			
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ALUMINON (A1) 1673:000 25.0000 NA BD B	MATHRACH (A1) 1673.000 NA BD BD BD BD BD ANTHRACH (A1) 1673.000 25.0000 NL BD BD BD BD BD BD ANTHRACH (A3) 0.0000 0.0000 0.000 0.0000 0.0000 0.0000 0.0000 0.0000 0.000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	ALDRIN	0.000	0.0250	0.65	BD	BD	BD	
AWTHRACENE 0.000 0.3000 NL BD	AWTHRACENE 0.000 0.3000 NL BD	ALUMINUM (A1)	1673.000	25.0000	NA	BD	BD	BD	
AWTHONY Definition BD	AWTHONY 3.100 3.000 NL BD	ANTHRACENE	0.000	0.3000	NL	BD	BD	BD	
ARSENIC (As) 3.170 2.0000 69 41.0000 49.6667 46 B-BHC (As) 3.170 2.0000 NL BD BD BD BD BD BL BARIUM (Ba) 3.0000 91.6667 117 BARIUM (Ba) 3.0000 91.6667 117 BARIUM (Ba) 3.0000 91.6667 117 BARIUM (Ba) 3.0000 91.6667 117 BARIOS(1,4,1) PERILENE 0.017 0.3000 NL BD	ARSENTC (As) 3.170 2.0000 69 44.0000 49.6667 46 B-BHC (As) 3.170 2.0000 NL BD	ANTIMONY	0.000	3.0000	NL	BD	BD	BD	
B-BHC B-BHC BD <	B-BHC b-BHC 0.001 0.0250 NL BD	ARSENIC (As)	3.170	2.0000	69	44.0000	49.6667	46	
B-ENDOSULFAN 0.000 0.0500 NL BD BD BD BD BD BD EXENTION (A)	B-ENDOGULEAN 0.000 0.0500 NL BD	B-BHC	0.001	0.0250	NL	BD	BD	BD	
BARLUM (Ba) BARLUM (Ba) 39.0000 NIL 39.0000 117 BENNO (a) ANTHRACENE 0.017 0.3000 NIL BD	BARLUM (BA:) BARLUM (BA:) BARLUM (BA:) BARLUM (BA:) BENZO((A, J) FEYLENE 0.017 0.3000 NL BD BD BD BD BD EENZO((A, J) FEYLENE 0.017 0.3000 NL BD BD BD BD BD EENZO((A, J) FEYLENE 0.017 0.3000 NL BD BD BD BD BD EENZO((A, J) FEYLENE 0.022 0.3000 NL BD BD BD BD BD EENZO((A) FLORANTHENE 0.022 0.3000 NL BD BD BD BD BD BD BD BD EENZO((A) FLORANTHENE 0.022 0.3000 NL BD	B-ENDOSULFAN	0.000	0.0500	NL	BD	BD	BD	
BENXO (a) ANTHRACENE 0.017 0.3000 NL BD BD BD BD BD BENZO (a) ATTHRACENE 0.017 0.3000 NL BD BD BD BD BENZO (a) FFLORANTHENE 0.022 0.3000 NL BD BD BD BD BENZO (b) FLORANTHENE 0.022 0.3000 NL BD BD BD BD BD BENZO (b) FLORANTHENE 0.022 0.3000 NL BD BD BD BD BD BENZO (b) FLORANTHENE 0.220 1.0000 NL BD BD BD BD BENZO (b) FLORANTHENE 0.2200 43 BD BD BD BD BENZO (b) FLORANTHENE 0.2200 43 BD BD BD BD BD BENZO (b) FLORANTHENE 0.2200 43 BD BD BD BD BD BENZO (b) FLORANTHENE 0.2200 1.0000 NL BD BD BD BD BD BD BENZO (b) FLORANTHENE 0.2200 1.0000 NL BD	BERNXO (a) ANTHRACENE 0.017 0.3000 NL BD <	BARIUM (Ba)	4.900	2.0000	NL	39.0000	91.6667	117	
BENZO(G, H, I) PERYLENE 0.017 0.3000 NL BENZO(G, H, I) PERYLENE 0.017 0.3000 NL BENZO(I) PTRANE 0.022 0.3000 NL BENZO(I) FLORAWTHENE 0.200 1.0000 NL BENZO(I) PTRANE 0.200 1.3000 NL BENZO(I) PERVLINI (Cd) 0.2000 143 BENZO(I) PERVLINI (Cd) 0.2000 NL BENZO(I) PERVLINI (CD) 0.21000 NL BENZO(I) PERVLINI (CD) 0.21300 2.0000 NL BENZO(I) PERVLINI (CD) 0.21300 2.0000 NL BENZO(I) PERVLINI (CD) 0.21300 1.0000 NL BENZO(I) PERVLINI PERVLINI (CD) 2.3000 NL BENZO(I) PERVLINI PERVLI	BENZO (G, H, I) PERYLENE 0.017 0.3000 NL BD BD BD BD BENZO (G, H, I) PERYLENE 0.022 0.3000 NL BD BENZO (A) PYRENE 0.022 0.3000 NL BD BENZO (A) PYRENE 0.022 0.3000 NL BD BD BD BENZO (A) FLORANTHENE 0.022 0.3000 NL BD BD BD BD BD BD CADILUM (A) 0.000 0.2000 NL BD BD BD 2.0000 BD CHROWIT (A) 0.000 0.2000 NL BD BD BD 2.0000 BD CHROWIT (A) 0.000 0.2000 NL BD BD BD 2.0000 BD CHROWIT (A) 0.000 0.2000 NL BD BD BD 2.0000 BD CHROWIT (A) 0.000 0.2000 NL BD BD BD BD CHROWIT (A) 0.000 0.2000 NL BD BD BD BD CHROWIT (A) 0.000 0.2000 NL BD BD BD CHROWIT (A) 0.000 0.2000 NL BD BD CHROWIT (A) 0.000 0.355 BD BD BD CHROWIT (A) 0.000 0.355 BD BD BD CHROWIT (A) ANTHRACENE 0.000 0.355 BD BD BD CHROWIT ALDEHYDE 0.000 0.355 BD BD BD CHRONIT ALDEHYDE 0.000 0.0500 NL BD BD CHRONIT ALDEHYDE 0.000 0.019 BD BD BD CHRONIT ALDEHYDE 0.000 0.0500 NL BD BD BD CHRONIT ALDEHYDE 0.000 0.0500 NL BD BD CHRONIT ALDEHYDE 0.000 0.0500 NL BD BD CHRONIT ALDEHYDE 0.0000 0.000 0.000 0.000 0.0000	BENXO (a) ANTHRACENE	0.017	0.3000	NL	BD	BD	BD	
BENZO(a) FYRENE 0.022 0.3000 NL BD BD BD BD BD BD BENZO(a) FYRENE 0.021 0.3000 NL BD BD BD BD BENZO(b) FLUCNANTHENE 0.221 0.3000 NL BD BD BD BD BD BENZU(K) (K-LORMANTHENE 0.220 1.0000 NL BD BD BD BD CADMIUM (Cd) 0.200 1.0000 NL BD BD 2.0000 BD CHRYDHU (Cd) 0.200 0.1200 NL BD BD 2.0000 BD CHRYDHU (Cd) 0.2000 NL BD BD BD CHRYDHU (Cd) 0.2000 NL BD BD CHRYDHU (Cd) 0.2000 NL BD BD 2.0000 BD CHRYDHU (Cd) 0.2000 NL BD BD BD BD CHRYDHU (Cd) 0.2000 NL BD BD CHRYDHU (Cd) 0.000 0.355 BD BD BD BD BD CHRYDHU (Cd) 0.000 0.0250 NL BD BD BD BD BD CHRYDH (Cd) 0.000 0.355 BD BD BD BD BD CHRYDH (Cd) 0.000 0.0500 NL BD BD BD CHRYDH (Cd) 0.000 0.0500 NL CHRYDH (Cd) 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	BENZO(a) FYRENE 0.022 0.3000 NL BENZO(b) FLORAWTHENE 0.021 0.3000 NL BENZO(b) FLORAWTHENE 0.021 0.3000 NL BENZO(b) FLORAWTHENE 0.220 0.3000 NL BENZO(b) FLORAWTHENE 0.220 1.0000 NL BENZO(b) FLORAWTHENE 0.2200 L10000 NL BENZO(b) FLORAWTHENE 0.2200 NL BENZO(b) FLORAWTHENE 0.2000 NL BENZO(b) FLORAWTHENE 0.2000 NL BENZO(b) FLORAWTHENE 0.2000 NL BENZO(b) FLORAWTHENE 0.2000 NL BENZO(b, H) ANTHRACENE 0.0000 NL BENZO(b, H) BEN	BENZO (G, H, I) PERYLENE	0.017	0.3000	NL	BD	BD	BD	
BENZO(b) FLUORANTHENE 0.021 0.3000 NL BD BD BD BD BENZO(b) FLUORANTHENE 0.022 0.3000 NL BD	BENZO(b) FLUORANTHENE 0.021 0.3000 NL BD ED BD BD BD BENZO(k) FLUORANTHENE 0.222 0.3000 NL BD ED BENZO(k) FLORANTHENE 0.202 1.0000 NL BD ED BENZO(k) FLORANTHENE 0.200 1.0000 NL BD ED BD BD CARMIUM (FRI) (Cr) 0.200 1.0000 NL BD 2.0000 BD 2.0000 BD CHRONIUM (FRI) (Cr) 0.2000 NL BD BD 2.0000 BD 2.0000 BD CHRONIUM (FRI) (Cr) 0.2100 0.2000 NL BD BD 2.0000 BD 2.0000 BD BD CORET (Cu) 2.3300 1.0000 S.3 13.0000 1.0000 5.3 13.0000 1.0000 5.3 13.0000 7.0000 BD	BENZO(a) PYRENE	0.022	0.3000	NL	BD	BD	BD	
BENZO(K) FLORANTHENE 0.022 0.3000 NL BENZO(K) FLORANTHENE 0.022 0.3000 NL BENZULIUM (Be) 0.200 1.0000 NL BENZULIUM (Cd) 0.200 1.0000 NA BENZULIUM (Cd) 2.0000 BENZULIUM (Cd) 0.200 0.1000 0.2.0000 NA BENZULIUM (Cd) 2.0000 BENZULIUM (Cd) 2.0000 NL BENZULIUM (Cd) 2.330 1.0000 NL BENZULITAN SULFATE 0.0001 0.355 BENZULITAN SULFATE 0.0001 0.0500 NL BENZULITAN SULFATE 0.0000 0.0500 NL BENZULITANTHENE 0.0000 0.0500 NL BENZULITANTHENE 0.0000 0.0000 0.0500 NL BENZULITANTHENE 0.0000 0.0000 0.0500 NL BENZULITANTHENE 0.0000 0.0000 0.0000 0.0000 SENZILITANTHENE 0.0000 0.0000 0.0000 SENZILITANTHENE 0.0000 0.0000 0.0000 SENZILITANTHENE 0.0000 0.0000 0.0000 SENZILITANTHENE SENZILITANTHENE 0.0000 SEN	BENZO(K) FLORANTHENE 0.022 0.3000 NL BD BD BD BD BD BD BD CADMIUM (Be) 0.200 1.0000 NL BD BD BD BD 2.0000 BD CADMIUM (Ca) 0.000 0.2000 NL BD BD BD 2.0000 BD CHROMIUM (Ca) 0.000 0.0000 NL BD BD BD 2.0000 BD BD CHRYSENE 0.019 0.3000 NL BD	BENZO (b) FLUORANTHENE	0.021	0.3000	NL	BD	BD	BD	
BERYLLIUM (Be) 0.200 1.0000 NL BD BD <t< td=""><td>BERYLLIUM (Be) 0.200 1.0000 NL BD BD BD BD CADMIUM (Cd) 0.000 0.2000 43 BD BD BD BD BD CHRYSENE 0.010 0.2000 NL BD BD BD BD BD CHRYSENE 0.010 0.3000 NL BD BD BD BD CHRYSENE 0.010 0.3000 NL BD BD BD COPALT (Co) 2.300 2.0000 NL BD BD BD COPALT (Co) 2.300 2.0000 NL BD BD BD COPER (Cu) 2.300 2.0000 NL BD BD BD COPER 0.010 0.0250 NL BD BD BD BD DD-BHC 0.000 0.0250 NL BD BD BD BD DTELDRIN 0.000 0.000 0.019 BD BD BD BD DTELDRIN 0.000 0.0500 NL BD BD BD BD DTELDRIN 0.000 0.000 0.0500 NL BD BD BD EN</td><td>BENZO(K) FLORANTHENE</td><td>0.022</td><td>0.3000</td><td>NL</td><td>BD</td><td>BD</td><td>BD</td><td></td></t<>	BERYLLIUM (Be) 0.200 1.0000 NL BD BD BD BD CADMIUM (Cd) 0.000 0.2000 43 BD BD BD BD BD CHRYSENE 0.010 0.2000 NL BD BD BD BD BD CHRYSENE 0.010 0.3000 NL BD BD BD BD CHRYSENE 0.010 0.3000 NL BD BD BD COPALT (Co) 2.300 2.0000 NL BD BD BD COPALT (Co) 2.300 2.0000 NL BD BD BD COPER (Cu) 2.300 2.0000 NL BD BD BD COPER 0.010 0.0250 NL BD BD BD BD DD-BHC 0.000 0.0250 NL BD BD BD BD DTELDRIN 0.000 0.000 0.019 BD BD BD BD DTELDRIN 0.000 0.0500 NL BD BD BD BD DTELDRIN 0.000 0.000 0.0500 NL BD BD BD EN	BENZO(K) FLORANTHENE	0.022	0.3000	NL	BD	BD	BD	
CADMIUM (Cd) 0.000 0.2000 43 BD	CADMIUM (Cd) 0.000 0.2000 43 BD	BERYLLIUM (Be)	0.200	1.0000	NL	BD	BD	BD	
CHROMIUM (TRI) (Cr) 6.300 2.0000 BD 2.0000 BD CHXSENE 0.019 0.3000 NL BD BD BD BD BD CHXSENE 0.019 0.3000 NL BD BD <td< td=""><td>CHROMIUM (TRI) (Cr) 6.300 2.0000 BD 2.0000 BD CHAYSENE 0.019 0.3000 NL BD BD BD BD CHAYSENE 0.019 0.3000 NL BD BD BD BD BD CHAYSENE 0.019 0.3000 NL BD BD BD BD BD COBALT (Co) 2.330 1.0000 5.3 13.0000 NL BD BD BD BD COPPER 0.10 0.001 0.0250 NL BD BD</td><td>CADMIUM (Cd)</td><td>0.000</td><td>0.2000</td><td>43</td><td>BD</td><td>BD</td><td>BD</td><td></td></td<>	CHROMIUM (TRI) (Cr) 6.300 2.0000 BD 2.0000 BD CHAYSENE 0.019 0.3000 NL BD BD BD BD CHAYSENE 0.019 0.3000 NL BD BD BD BD BD CHAYSENE 0.019 0.3000 NL BD BD BD BD BD COBALT (Co) 2.330 1.0000 5.3 13.0000 NL BD BD BD BD COPPER 0.10 0.001 0.0250 NL BD	CADMIUM (Cd)	0.000	0.2000	43	BD	BD	BD	
CHRYSENE 0.019 0.3000 NL BD BD BD BD COPPER (cu) 2.300 2.0000 NL BD BD BD BD COPPER (cu) 2.330 1.0000 5.3 13.0000 7.0000 5 D-BHC 0.001 0.0250 NL BD BD BD BD DTBENZO(A, H) ANTHRACENE 0.001 0.0250 NL BD BD BD BD DTELDRIN 0.001 0.0500 NL BD BD BD BD DIELDRIN 0.001 0.0500 NL BD BD BD BD ENDOSULFAN SULFATE 0.001 0.0500 NL BD BD BD ENDORULFANE 0.000 0.0500 NL BD BD BD ENDORULFAN 0.000 0.0500 NL BD BD BD ENDORULFAN 0.000 0.0500 NL BD BD BD FLUORANTHENE 0.000 0.0000 0.0500 N	CHRYSENE 0.019 0.3000 NL BD BD </td <td>CHROMIUM (TRI) (Cr)</td> <td>6.300</td> <td>2.0000</td> <td>NA</td> <td>BD</td> <td>2.0000</td> <td>BD</td> <td></td>	CHROMIUM (TRI) (Cr)	6.300	2.0000	NA	BD	2.0000	BD	
COBALT (Co) 2:300 2:0000 NL BD BD BD BD COPPER (Cu) 2:330 1:0000 5:3 13:0000 7.0000 5 D-BHC 2:330 1:0000 5:3 13:0000 7.0000 5 D-BHC 0:000 0:0250 NL BD BD BD BD DIEBNZO(A, H) ANTHRACENE 0:001 0.0550 NL BD BD BD BD DIELDRIN 0:001 0.5500 NL BD BD BD BD BD ENDOSULFAN SULFATE 0:001 0.5500 NL BD BD BD BD ENDORNIL 0:000 0:0500 NL BD BD BD BD ENDORANTHENE 0:000 0:0500 NL BD BD BD BD FLUORANTHENE 0:000 0:0500 NL BD BD BD BD FLUORANTHENE 0:000 0:0500 NL BD BD BD BD FLUORANT 0:000	COBALT (Co) 2.300 2.0000 NL BD BD BD COPPER (Cu) 2.330 1.0000 5.3 13.0000 7.0000 5 D-BHC 2.330 1.0000 5.3 13.0000 7.0000 5 D-BHC 0.000 0.0250 NL BD BD BD BD DIEENZO(A, H)ANTHRACENE 0.001 0.3000 NL BD BD BD BD DIEENZO(A, H)ANTHRACENE 0.001 0.3550 NL BD BD BD BD DIEENZUAN 0.001 0.3550 NL BD BD BD BD ENDRIN 0.000 0.0500 NL BD BD BD BD ENDRIN 0.000 0.0500 NL BD BD BD BD ELUORANTHENE 0.0010 0.3500 NL BD BD BD BD FLUORANTHENE 0.0010 0.3000 NL BD BD BD BD FLUORANTHENE 0.0010 0.0250	CHRYSENE	0.019	0.3000	NL	BD	BD	BD	
COPPER(Cu)2.3301.00005.313.00007.00005D-BHC0.0000.0250NLBDBDBDBDBDDTEENZO(A, H) ANTHRACENE0.0010.0250NLBDBDBDBDBDDTELDRIN0.0010.0250NLBDBDBDBDBDBDDTELDRIN0.0010.0500NLBDBDBDBDBDBDENDOSULFAN SULFATE0.0000.0500NLBDBDBDBDBDENDRIN0.0000.0500NLBDBDBDBDBDENDRIN0.0000.0500NLBDBDBDBDBDENDRIN0.0000.0500NLBDBDBDBDBDENDRIN0.0000.0500NLBDBDBDBDBDFLUORANTHENE0.0000.02500.008BDBDBDBDFLUORENE0.0030.02500.08BDBDBDBD	COPPER (Cu) 2.330 1.0000 5.3 13.0000 7.0000 5 D-BHC 0.000 0.0250 NL BD BD BD BD BD BD DIBENZO(A, H) ANTHRACENE 0.002 0.0250 NL BD	COBALT (Co)	2.300	2.0000	NL	BD	BD	BD	
D-BHC 0.000 0.0250 NL BD BD BD BD DIEENZO(A, H) ANTHRACENE 0.002 0.3000 NL BD BD BD BD DIELDRIN 0.001 0.0500 NL BD BD BD BD DIELDRIN 0.001 0.0500 0.355 BD BD BD BD ENDOSULFAN SULFATE 0.000 0.0500 NL BD BD BD BD ENDRIN 0.000 0.0500 NL BD BD BD BD FLUORANTHENE 0.0010 0.33000 NL BD BD BD BD FLUORANTHENE 0.0000 0.0010 0.33000 NL BD BD BD BD G-BHC 0.0003	D-BHC 0.000 0.0250 NL BD BD BD BD BD DIBENZO(A, H) ANTHRACENE 0.002 0.3000 NL BD BD BD BD DIELDRIN DIELDRIN 0.001 0.3550 NL BD BD BD BD DIELDRIN 0.001 0.0500 0.355 BD BD BD BD ENDOSULFAN SULFATE 0.000 0.0500 NL BD BD BD ENDRIN 0.000 0.0500 NL BD BD BD ENDRIN ALDEHYDE 0.000 0.0500 NL BD BD ENDRANTHENE 0.000 0.0500 NL BD BD BD FLUORANTHENE 0.000 0.0500 NL BD BD BD FLUORANTHENE 0.000 0.0500 NL BD BD BD FLUORANTHENE 0.000 0.0250 NL BD BD BD FLUORANTHENE 0.0003 0.0250 0.08 BD BD BD	COPPER (Cu)	2.330	1.0000	5.3	13.0000	7.0000	ß	
DIBENZO (A, H) ANTHRACENE 0.002 0.3000 NL BD BD BD BD DIELDRIN 0.001 0.0500 0.355 BD BD BD BD ENDOSULFAN SULFATE 0.001 0.0500 0.355 BD BD BD BD ENDOSULFAN SULFATE 0.000 0.0500 NL BD BD BD BD ENDRIN 0.000 0.0500 NL BD BD BD BD ENDRIN ALDEHYDE 0.000 0.0500 NL BD BD BD BD FLUORANTHENE 0.010 0.3000 NL BD BD BD BD FLUORANTHENE 0.0010 0.3000 NL BD BD BD BD FLUORANTHENE 0.0000 0.0000 0.0000 BD BD BD BD FLUORANTHENE 0.0000 0.0000 0.0000 BD BD BD BD FLUORANTHENE 0.0000 0.0000 0.0000 BD BD BD BD <td>DIBENZO (A, H) ANTHRACENE 0.002 0.3000 NL BD BD BD DIELDRIN 0.001 0.0500 0.355 BD BD BD BD ENDOSULFAN SULFATE 0.001 0.0500 0.355 BD BD BD BD ENDOSULFAN SULFATE 0.000 0.0500 NL BD BD BD BD ENDRIN 0.000 0.0500 NL BD BD BD BD ENDRIN ALDEHYDE 0.000 0.0500 NL BD BD BD BD FLUORANTHENE 0.0010 0.3000 NL BD BD BD BD FLUORANTHENE 0.0010 0.3000 NL BD BD BD BD FLUORENE 0.0010 0.23000 NL BD BD BD BD FLUORENE 0.0010 0.23000 NL BD BD BD BD FLUORENE 0.0010 0.23000 NL BD BD BD BD FLUORENE 0.0003<td>D-BHC</td><td>0.000</td><td>0.0250</td><td>NL</td><td>BD</td><td>BD</td><td>BD</td><td></td></td>	DIBENZO (A, H) ANTHRACENE 0.002 0.3000 NL BD BD BD DIELDRIN 0.001 0.0500 0.355 BD BD BD BD ENDOSULFAN SULFATE 0.001 0.0500 0.355 BD BD BD BD ENDOSULFAN SULFATE 0.000 0.0500 NL BD BD BD BD ENDRIN 0.000 0.0500 NL BD BD BD BD ENDRIN ALDEHYDE 0.000 0.0500 NL BD BD BD BD FLUORANTHENE 0.0010 0.3000 NL BD BD BD BD FLUORANTHENE 0.0010 0.3000 NL BD BD BD BD FLUORENE 0.0010 0.23000 NL BD BD BD BD FLUORENE 0.0010 0.23000 NL BD BD BD BD FLUORENE 0.0010 0.23000 NL BD BD BD BD FLUORENE 0.0003 <td>D-BHC</td> <td>0.000</td> <td>0.0250</td> <td>NL</td> <td>BD</td> <td>BD</td> <td>BD</td> <td></td>	D-BHC	0.000	0.0250	NL	BD	BD	BD	
DIELDRIN 0.001 0.0500 0.355 BD BD BD BD BD ENDSULFAN SULFATE 0.000 0.0500 NL BD	DIELDRIN 0.001 0.0500 0.355 BD BD BD BD ENDSULFAN SULFATE 0.000 0.0500 NL BD BD BD BD ENDSULFAN SULFATE 0.000 0.0500 NL BD BD BD BD ENDRIN 0.000 0.0500 0.019 BD BD BD BD ENDRIN ALDEHYDE 0.000 0.0500 NL BD BD BD BD FLUORANTHENE 0.010 0.3000 NL BD BD BD BD FLUORENE 0.0010 0.3000 NL BD BD BD BD FLUORENE 0.003 0.0250 0.08 BD BD BD BD	DIBENZO (A, H) ANTHRACENE	0.002	0.3000	NL	BD	BD	BD	
ENDOSULFAN SULFATE 0.000 0.0500 NL BD	ENDOSULFANE 0.000 0.0500 NL BD BD BD BD BD ENDRIN 0.000 0.0500 0.019 BD BD BD BD BD ENDRIN ALDEHYDE 0.000 0.0500 NL BD BD BD BD BD FLUORANTHENE 0.000 0.33000 NL BD BD BD BD FLUORANTHENE 0.010 0.3000 NL BD BD BD BD FLUORENE 0.000 0.0250 0.08 BD BD BD BD FLUORENE 0.003 0.0250 0.08 BD BD BD BD	DIELDRIN	0.001	0.0500	0.355	BD	BD	BD	
ENDRIN ENDRIN 0.000 0.0500 0.019 BD BD BD BD BD BD ENDRIN ALDEHYDE 0.000 0.0500 NL BD	ENDRIN ENDRIN ENDRIN ALDEHYDE 0.000 0.019 BD BD BD BD BD BD BD ENDRIN ALDEHYDE 0.000 0.0500 NL BD	ENDOSULFAN SULFATE	0.000	0.0500	NL	BD	BD	BD	
ENDRIN ALDEHYDE 0.000 0.0500 NL BD BD BD BD ELUORANTHENE 0.010 0.3000 NL BD	ENDRIN ALDEHYDE 0.000 0.0500 NL BD BD BD BD ELUCRANTHENE 0.010 0.3000 NL BD	ENDRIN	0.000	0.0500	0.019	BD	BD	BD	
FLUORANTHENE 0.010 0.3000 NL BD BD BD BD BD FLUORANTHENE 0.000 0.3000 NL BD BD BD BD BD BD BD C-BHC 0.003 0.0250 0.08 BD	FLUORANTHENE 0.010 0.3000 NL BD BD BD BD BD ELUORANTHENE 0.000 0.3000 NL BD	ENDRIN ALDEHYDE	0.000	0.0500	NL	BD	BD	BD	
FLUORENE 0.000 0.3000 NL BD BD BD BD G-BHC 0.003 0.0250 0.08 BD BD BD BD BD	FLUORENE 0.000 0.3000 NL BD BD BD BD C-BHC 0.003 0.0250 0.08 BD BD BD BD BD BD BD C-BHC 0.003 0.0250 0.08 BD	FLUORANTHENE	0.010	0.3000	NL	BD	BD	BD	
G-BHC 0.003 0.0250 0.08 BD BD BD BD	G-BHC 0.003 0.0250 0.08 BD BD BD	FLUORENE	0.000	0.3000	NL	BD	BD	BD	
		G-BHC	0.003	0.0250	0.08	BD	BD	BD	

BD BD BD BD

PARAMETER PCB 169 PCB 170							
PCB 169 PCB 170	SEDIMENT	DETECTION LIMIT	WATER QUALITY STANDARDS ¹	BACKGROUND CONC	ELUTRIATE CONC	OVERFLOW CONC	
PCB 169 PCB 170	mg/kg	µg/1	µg/1	µg/1	µg/1	μg/1	
PCB 169 PCB 170							
PCB 170	0.000	0.0010	NL	BD	BD	BD	
	0.000	0.0010	NL	BD	BD	BD	
PCB 171	0.000	0.0010	NL	BD.	BD	BD	
PCB 174	0.000	0.0010	NL	BD	BD	BD	
PCB 177	0.000	0.0010	NL	BD	BD	BD	
PCB 178	0.000	0.0010	NL	BD	BD	BD	
PCB 179	0.000	0.0010	NL	BD	BD	BD	
	000 0	0 0010	NT.	L L L		L H	
	000 0	0100 0	NT.				
PCB 183		0100 0	NT				
FCD 102	0,000	0100 0	IN				
FCD 103	000		INT				
PCB 103	0.000	0100 0	NL				
		0100 0	IN				
100 TOT		0100 0	NT				
PCR 191	0.000	0.0010	NL		C C C C C C C C C C C C C C C C C C C	BD	
DCB 104		0 0010	NT		C a		
PCB 195	0.000	0.0010	NL -	BD	BD	BD	
PCB 196	0.000	0.0010	NL	BD	BD	BD	
PCB 198	0.000	0.0010	NL	BD	BD	BD	
PCB 200	0.000	0.0010	NL	BD	BD	BD	
PCB 201	0.000	0.0010	NL	BD	BD	BD	
PCB 203	0.000	0.0010	NL	BD	BD	BD	
PCB 205	0.000	0.0010	NL	BD	BD	BD	
PCB 206	0.000	0.0010	NL	0.0020	0.0024	0.0017	
PCB 207	0.000	0.0010	NL	BD	BD	BD	
PCB 208	0.000	0.0010	NL	BD	0.0012	BD	
PCB 22	0.000	0.0010	NL	BD	BD	BD	
PCB 28	0.000	0.0010	NL	BD	BD	BD	
PCB 31	0.000	0.0010	NL	BD	0.0029	BD	
PCB 33	0.000	0.0010	NL	BD	BD	BD	
PCB 37	0.000	0.0010	NL	BD	BD	BD	
PCB 40	0.000	0.0010	NL,	BD	BD	BD	
PCB 42	0.000	0.0010	NL	BD	BD	0.0014	
PCB 44	0.000	0.0010	NL	0.0014	BD	BD	
PCB 47	0.000	0.0010	NL	BD	BD	BD	
PCB 49	0.000	0.0010	NL	BD	BD	BD	
PCB 52	0.000	0.0010	NL,	BD	0.0010	BD	
PCB 60	0.000	0.0010	NL	BD	BD	BD	

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found in the Delaware River Basin Commission West Trenton, New Jersey, Administrative Manual-Part III, Water Quality Regulations, October 23, 1996. Only two exceedances were found in the dissolved overflow water (Table 3). Endrin was measured at a concentration of 0.0754 μ g/l as compared to the standard of 0.019 μ g/l. Zinc was measured at a concentration of 131 μ g/l as compared to the standard of 95 μ g/l. See Appendix A for the Delaware River water quality and sediment analysis for the fine-grained site.

Hopper Inflow

Coarse-grained site

Samples collected for grain-size distribution at the hopper inflow at the coarse-grained site averaged 84 percent sand (Figure 7). The range was from 52 to 98 percent. Eliminating the 52-percent sample resulted in a sandy composition of 92 percent with a range from 86 to 98 percent. This is more representative of that collected from the in situ sampling. Suspended solids concentrations in the hopper inflow could not be accurately determined because the coarse-grained material rapidly settled to the bottom of the sampling buckets, and the total bucket sample was not retained for analysis.

Fine-grained site

Samples collected for grain-size distribution at the hopper inflow at the fine-grained site averaged 12 percent sand (Figure 8). The range was from 9 to 15 percent. This is much less than the 33 percent represented by the in situ sampling.

Hopper Contents

Coarse-grained site

Suspended solids concentrations in the hopper at the coarse-grained site were <15 g/l (Figure 9). This indicates that settling was occurring very rapidly. Although the samples should be representative of the water column, it should be realized that the agitation occurring inside the hopper will keep the material in suspension for an extended period of time. Therefore, when the sample was collected, the material being agitated quickly settled and was not collected in the 250-ml sample bottle.



Range of gradation curves from in situ sediment collected at the fine-grained site Figure 6.







Figure 8. Range of gradation curves from hopper inflow at the fine-grained site



Figure 9. Hopper contents—solids concentrations of coarse-grained material

Fine-grained site

Suspended solids concentrations in the hopper at the fine-grained site were upward of 150 g/l at the bottom and approximately 80 g/l at the surface (Figure 10). It is expected that high concentrations of suspended solids would be found in the water column as the hopper agitates the fine-grained material and keeps it in suspension. The high concentrations of suspended solids at the surface indicate that a large amount of the material was lost to overflow in the fine-grained site.



Figure 10. Hopper contents—solids concentrations of fine-grained material

Hopper Overflow

Coarse-grained site

Samples collected for grain-size distribution at the hopper overflow at the coarse-grained site averaged 81.1 percent sand with a range from 24.4 to 96.1 percent (Figure 11). Composites of five samples were obtained and the average grain-size distribution was 78.1 percent with a range from 66.7 to 87.7 percent (Figure 12). This shows that a large amount of the sandy material was being agitated in the hopper and being washed out during overflow. This is consistent with the loading data that show a loading of about 112.4 m³/min (147 yd³/min) before overflow and an average loading of about 22.9 m^3/min (30 yd³/min) over the 57-min period during overflow. However, the rate of loading in the initial stages of overflow was likely much higher with the material in the overflow increasing as the hopper filled and retention time was decreased. None of the chemistry parameters analyzed in the overflow samples collected at the coarse-grained site exceeded marine acute objectives as listed in the Delaware River Basin Water Ouality Regulations for dissolved criteria limits. Although the background value for copper (13 μ g/l) exceeded the criteria (5.3 μ g/l), the dissolved value for copper in the overflow was 5 μ g/l, indicating a scavenging of metals by the suspended material during the dredging and overflow process.

Fine-grained site

Samples collected for grain-size distribution at the hopper overflow at the fine-grained site averaged 12.2 percent sand with a range from 6.2 to 31.2 percent (Figure 13). Composites of five samples were obtained and the average grain-size distribution was 10.6 percent with a range from 9.3 to 11.6 percent (Figure 14). The suspended solids concentrations in the overflow averaged 110 g/l over the total overflow period of 21 min. The solids concentrations were essentially consistent throughout the overflow period, indicating little retention of the fine material in the hopper once overflow began. A large amount of material, about 59.4 m³/min (78 yd³/min) or about 89 percent of the inflow is being lost to overflow. Zinc $(131 \,\mu\text{g/l})$ and endrin (0.0754 μ g/l) were the only two chemical parameters measured in the overflow that exceeded the more stringent acute objectives of the freshwater and marine stream quality standards (95 µg/l for zinc and $0.019 \mu g/l$ for endrin) as listed in the Delaware River Basin Water Quality Regulations for dissolved criteria limits. The value for endrin exceeded standards by a factor of 4, indicating that both water quality objectives could be met a short distance from the point of overflow. None of the other chemistry parameters analyzed in the overflow samples collected at the fine-grained site exceeded the acute objectives.







Figure 12. Range of gradation curves from hopper overflow composites at the coarse-grained site







Range of gradation curves from hopper overflow composites at the fine-grained site Figure 14.

Plume Monitoring

Monitoring of the sediment plumes was accomplished using a boatmounted 1,200-kHz Broad-Band Acoustic Doppler Current Profiler (ADCP). The instrument collects velocity vectors in the water column together with backscatter levels to determine the position and relative intensity of the sediment plume. Along with the ADCP, a MicroLite recording instrument with an Optical Backscatterance (OBS) Sensor was towed by the vessel at a depth of 15 ft. The MicroLite recorded data at 0.5-sec intervals. Navigation data for monitoring were obtained by a Starlink differential Global Positioning System (GPS). The GPS monitors the boat position from the starting and ending points along each transect.

Coarse-grained site

Transects were monitored in each test area to obtain the background levels of suspended materials prior to dredging activities. A period of 8 min following the dredge passing during nonoverflow dredging shows the level of suspended material to be returning to background levels. No lateral dispersion of the plume out of the channel was observed during the nonoverflow dredging operation.

During overflow dredging, a wider transect was performed to determine the lateral extent of the plume. No significant change above background levels could be detected. At 1-hr elapsed time following the end of the overflow dredging operation, the levels of suspended material returned to background conditions. Again, no lateral dispersion of the plume out of the channel area was observed. A complete analysis of the plume study can be found in Appendix B.

Figure 15 is a surface profile of the solids concentrations measured during nonoverflow and overflow conditions. Both sets of data fall within the minimum and maximum range of the background solids concentrations measured prior to dredging. Figure 16 is a middepth profile of the solids concentrations. Because of the narrow range between the measured values of the minimum and maximum range, both the nonoverflow and the overflow measured solids concentrations were above the maximum range. Figure 17 is a bottom profile of the solids concentrations and can be described much like that of the surface profile in that both sets of data fall within the minimum and maximum range of the background solids concentrations. In all three instances, there is not a significant difference in the solids concentrations measured during nonoverflow and the solids concentrations measured during nonoverflow and the solids concentrations measured during nonoverflow and overflow fell within the total minimum and maximum range measured in the background prior to dredging.



Figure 15. Plume solids concentrations at surface (coarse-grained material)



Figure 16. Plume solids concentrations at middepth (coarse-grained material)


Figure 17. Plume solids concentrations at bottom (coarse-grained material)



Figure 18. Plume solids concentrations at coarse-grained site

Fine-grained site

During the nonoverflow dredging operation, the tidal flow in the dredging area reversed from flood flow to ebb flow conditions. This accounts for the relative change in observed background levels taken before the non-overflow and overflow test dredging. At 19 min following the end of nonoverflow dredging, the levels of suspended material had returned to background conditions. Despite the change in direction of flow in the dredging area, no lateral movement of the plume beyond the channel limits was observed.

Immediately prior to overflow conditions, an increase in the background suspended material was observed. This increase is assumed to be the result of the increase in the ebb flow velocities and the resulting disturbance of bottom materials from near-bottom velocities and not dredge plume dispersion. When hopper overflow conditions began, the width of the transect was increased to observe the lateral extent of the dispersion of the dredge plume. After an elapsed time of 1 hr following the completion of the overflow dredging operation, levels of suspended materials had returned to background conditions. As in the previous dredge operations, no lateral dispersion of the dredge plume beyond the channel limits was observed. A complete analysis of the plume study can be found in Appendix B.

Figure 19 shows the solids concentrations as measured at the surface during nonoverflow and overflow conditions. The overflow solids concentrations oscillate outside the maximum background solids concentration. Toward the end of overflow, the concentrations fall back within the background range. Figure 20 shows the solids concentration as measured at middepth. The same pattern as the surface profile is exhibited. Figure 21 shows the solids concentration as measured at the bottom. The nonoverflow solids concentrations remain within the measured range of the background; however, the overflow solids concentrations remain above the maximum background range throughout the duration of overflow. Figure 22 shows the maximum background range of solids concentration measured. The nonoverflow solids measured are well within the total range while the overflow solids concentrations oscillate outside the maximum range. This is consistent since 70 percent or more of the material is fine-grained and would settle slowly.

Sedimentation Results

Coarse-grained site

Sediment profile images from a total of 14 stations were analyzed from the coarse-grained site as shown in Figure 2 of Appendix C. There was evidence that recent sedimentation had occurred at several of the stations



Figure 19. Plume solids concentrations at surface (fine-grained material)



Figure 20. Plume solids concentrations at middepth (fine-grained material)



Figure 21. Plume solids concentrations at bottom (fine-grained material)



Figure 22. Plume solids concentrations of fine-grained material

within the channel, possibly a result of the dredging operations. Gray colored suspended material, indicative of hopper overflow material, was observed at two of the stations. Four of the stations had layering from grain-size changes but are assumed to have occurred because of normal sediment transport processes rather than hopper overflow operations.

Fine-grained site

Sediment profile images from a total of 41 stations were analyzed from the fine-grained site as shown in Figure 3 of Appendix C. No evidence of recent physical disturbance was detected at any of the stations, but material that could have come from the hopper overflow was observed at one station. Five of the stations on the edge of the channel had grain-size layering with sands on the surface overlaying clayey sediments. Since the sediments in the channel were finer silts and clays, it was unlikely that the layers at the channel edge stations were the result of the dredging operations. Three of the stations on the edge of the channel had sediment layering with amphipod and worm tubes which could not have reestablished living position in the short interval between dredging and sampling. Flocculent sediment layers, thin layers of unconsolidated surface sediments, occurred at six shoal stations and one channel edge station. Based on their color tones, all flock layers appeared to be composed of background sediments and not hopper overflow or dredged material.

No indication of newly deposited dredged material was observed at stations outside the edge of the navigation channel at either study site. Although the sampling station coverage was not extensive, given the relatively short duration of the tests, the risk of significant sedimentation as a consequence of the hopper dredging operations appears largely restricted to the bottom and side slopes of the channel. The full report on the sedimentation analysis is attached as Appendix C.

Standard Elutriate Tests

The standard elutriate analysis was performed using the composited insitu sediment and site water. The purpose of the standard elutriate testing was to gain data on possible application of the test for prediction of overflow contaminant concentrations. The mean predicted dissolved values from the elutriates were calculated using the EFQUAL computer program, a module of the ADDAMS software package.¹ The elutriate test was conducted using standard procedures.²

¹ Palermo, M. R., and Schroder, P. R. (1991). "Documentation of the EFQUAL module for ADDAMS: Comparison of predicted effluent water quality with standards," Technical Note EEDP-06-13, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS

 ² U.S. Environmental Protection Agency and U.S. Army Corps of Engineers. (1998).
 "Evaluation of dredged material proposed for discharge in inland and near-coastal waters - Testing manual," EPA-823-B-98-004, U.S. Environmental Protection Agency, Washington, DC.

Coarse-grained site

At the coarse-grained site, background dissolved copper was the only contaminant of concern that was predicted to be above the standard (Table 2). The program predicted that copper would be discharged at 7 µg/l which is above the marine objective acute criteria but well below the background value of 13 µg/l. Therefore, a dilution of the background with respect to copper would naturally occur as a result of the dredging operation, and a mixing zone would not be required. The actual value recorded at the hopper overflow (effluent) for copper was 5 µg/l, which was below both the background and the standard of 5.3 µg/l.

Fine-grained site

At the fine-grained site, the predicted dissolved value of selenium was $24.3 \ \mu g/l$ (Table 3). The more stringent acute value of the freshwater or marine stream quality standard for selenium is $20 \ \mu g/l$ and the background was $19 \ \mu g/l$. The actual value recorded at the hopper overflow for selenium was $14.2 \ \mu g/l$, which is below the criteria and the background value, which would indicate a natural dilution of the contaminant of concern during dredging operations. Again, because of this natural dilution, a mixing zone would not be required.

At both reaches, the predicted elutriate values appear somewhat conservative when compared with the overflow values. The close agreement of the elutriate values with the actual overflow values (Tables 2 and 3) indicate that the elutriate test can be used as a valid predictor of overflow quality for the Delaware River. Summaries of the standard elutriate and predicted effluent quality results for the two sites can be found in Tables 2 and 3. A complete listing of the water quality, sediment, and elutriate analysis for both sites can be found in Appendix A.

Technical Findings of a 96-hr Water Column Bioassay

This test was performed to determine the possible biological effects of water column exposure to Delaware River overflow. Two species were used in performing the bioassays, the mysid shrimp, a crustacean species, *Mysidopsis bahia*, and the inland silverside, a fish species, *Menidia beryllina*. These species were selected based on conversations with personnel from the Delaware Department of Natural Resources and Environmental Control. The filtered elutriate was diluted with standard laboratory control seawater (6-ppt salinity for the fine-grained site and 30-ppt salinity for the coarse-grained site) to yield the following concentrations: 0-, 6.25-, 12.5-, 25-, 50-, and 100-percent elutriate. Each treatment was replicated five

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CADMIUM (cd) 0.297 0.2000 34 BD BD <td>0.2000 34 200.0000 NL</td> <td>0.900</td> <td>BERYLLIUM (Be)</td>	0.2000 34 200.0000 NL	0.900	BERYLLIUM (Be)
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$ \begin{array}{c} {\rm CHROMIUM}({\rm TRI})({\rm Cr})& 41.500& 2.0000& 8340& {\rm BD}& {\rm BD}& {\rm BD}\\ {\rm CHRYSENE}& 0.120& 0.3000& {\rm NL}& {\rm BD}& {\rm BD}& {\rm BD}\\ {\rm COBALT}({\rm Co})& 11.100& 2.0000& {\rm NL}& {\rm BD}& {\rm BD}& 2.3333\\ {\rm COPPER}({\rm Cu})& 16.400& 1.0000& 5.3& 4.0000& 2.3333\\ {\rm COPPER}({\rm Cu})& 0.000& 0.0500& {\rm NL}& {\rm BD}& {\rm BD}& {\rm BD}\\ {\rm D-BHC}& 0.000& 0.0500& {\rm NL}& {\rm BD}& {\rm BD}& {\rm BD}& {\rm BD}\\ {\rm DIBENZO}({\rm A},{\rm H}){\rm ANTHRACENE}& 0.0008& 0.3000& {\rm NL}& {\rm BD}& {\rm BD}& {\rm BD}& {\rm BD}\\ {\rm DIBENZO}({\rm A},{\rm H}){\rm ANTHRACENE}& 0.0008& 0.3000& {\rm NL}& {\rm BD}& {\rm BD}& {\rm BD}\\ {\rm DIELDRIN}& 0.0000& 0.1000& {\rm NL}& {\rm BD}& {\rm BD}& {\rm BD}& {\rm BD}\\ {\rm ENDRIN}& {\rm OLFATE}& 0.0006& 0.1000& {\rm NL}& {\rm BD}& {\rm BD}& {\rm BD}& {\rm BD}\\ {\rm ENDRIN}& {\rm ALDEHYDE}& 0.0000& 0.1000& {\rm NL}& {\rm BD}& {\rm BD}& {\rm BD}& {\rm BD}\\ {\rm ENDRIN}& {\rm ALDEHYDE}& 0.0000& 0.1000& {\rm NL}& {\rm BD}& {\rm BD}$		2223.000 2	CALCIUM (Ca)
CHRYSENE 0.120 0.3000 NL BD BD BD COBALT (Co) 11.100 2.0000 NL BD 2.3333 COPER (Cu) 11.100 2.0000 NL BD 2.3333 COPER (Cu) 16.400 1.0000 5.3 4.0000 2.3333 D-BHC 0.000 0.0500 NL BD BD 2.3333 DFBRZO(A, H) ANTHRACENE 0.000 0.0500 NL BD BD 2.3333 DIEENZO(A, H) ANTHRACENE 0.000 0.000 0.3550 BD BD BD DIELDRIN 0.000 0.1000 0.3555 BD BD BD DIELDRIN 0.000 0.1000 0.1000 0.019 BD BD ENDRIN 0.000 0.1000 0.1000 0.019 BD BD FLUORANTHENE 0.150 0.3000 NL BD BD BD FLUORENE 0.015 0.3000 NL BD BD BD FLUORENE 0.015 0.3000 NL BD BD BD	2.0000 8340	41.500	CHROMIUM (TRI) (Cr)
$\begin{array}{ccccc} \text{COBALT} \ (\text{Co}) & 11.100 & 2.0000 & \text{NL} & \text{BD} & 2.333 \\ \text{COPFER} \ (\text{Cu}) & 16.400 & 1.0000 & 5.3 & 4.0000 & 2.333 \\ \text{D-BHC} & 0.000 & 0.0500 & \text{NL} & \text{BD} & \text{BD} & \text{BD} \\ \text{DIBENZO}(\text{A}, \text{H}) \text{ANTHRACENE} & 0.000 & 0.3000 & \text{NL} & \text{BD} & \text{BD} & \text{BD} \\ \text{DIEENZO}(\text{A}, \text{H}) \text{ANTHRACENE} & 0.000 & 0.1000 & 0.355 & \text{BD} & \text{BD} & \text{BD} \\ \text{DIELDRIN} & 0.000 & 0.1000 & 0.1000 & \text{NL} & \text{BD} & \text{BD} & \text{BD} \\ \text{ENDRIN} & 0.000 & 0.1000 & \text{NL} & \text{BD} & \text{BD} & \text{BD} & \text{BD} \\ \text{ENDRIN} & 0.000 & 0.1000 & \text{NL} & \text{BD} & \text{BD} & \text{BD} & \text{BD} \\ \text{ENDRIN} \text{ALDEHYDE} & 0.0000 & 0.1000 & \text{NL} & \text{BD} & \text{BD} & \text{BD} \\ \text{ENDRIN ALDEHYDE} & 0.0000 & 0.1000 & \text{NL} & \text{BD} & \text{BD} & \text{BD} \\ \text{FLUORANTHENE} & 0.0150 & 0.3000 & \text{NL} & \text{BD} & \text{BD} & \text{BD} \\ \text{FLUORENE} & 0.0000 & 0.0000 & 0.0000 & \text{NL} & \text{BD} & \text{BD} & \text{BD} \\ \text{ENDRIN ALDEHYDE} & 0.0000 & 0.0000 & \text{NL} & \text{BD} & \text{BD} & \text{BD} \\ \text{ENDRIN ALDEHYDE} & 0.0000 & 0.0000 & \text{NL} & \text{BD} & \text{BD} & \text{BD} \\ \text{ENDRIN ALDEHYDE} & 0.0000 & 0.0000 & \text{NL} & \text{BD} & \text{BD} & \text{BD} \\ \text{ENDRIN ALDEHYDE} & 0.0000 & 0.0000 & \text{NL} & \text{BD} & \text{BD} & \text{BD} \\ \text{ENDRIN ALDEHYDE} & 0.0000 & 0.0000 & \text{NL} & \text{BD} & \text{BD} & \text{BD} \\ \text{ENDRANTHENE} & 0.0000 & 0.0000 & \text{NL} & \text{BD} & \text{BD} & \text{BD} \\ \text{ENDRANTHENE} & 0.0000 & 0.0000 & \text{NL} & \text{BD} & \text{BD} & \text{BD} \\ \text{ENDRANTHENE} & 0.0000 & 0.0000 & 0.0000 & \text{BD} & \text{BD} & \text{BD} \\ \end{array}$	0.3000 NL	0.120	CHRYSENE
COPFER (Cu) 16.400 1.0000 5.3 4.0000 2.3333 D-BHC 0.000 0.0500 NL BD BD BD DIBENZO(A, H) ANTHRACENE 0.000 0.3000 NL BD BD BD DIEENZO(A, H) ANTHRACENE 0.000 0.3000 NL BD BD BD DIELDRIN 0.000 0.1000 0.1000 0.355 BD BD BD DIELDRIN 0.000 0.1000 0.1000 0.355 BD BD BD ENDRIN 0.000 0.1000 0.1000 NL BD BD BD ENDRIN ALDEHYDE 0.000 0.1000 NL BD BD BD FLUORANTHENE 0.150 0.3000 NL BD BD BD BD FLUORANTHENE 0.015 0.3000 NL BD BD BD BD FLUORENE 0.015 0.3000 NL BD BD BD BD	2.0000 NL	11.100	COBALT (Co)
D-BHC 0.000 0.0500 NL BD BD BD DIBENZO(A, H) ANTHRACENE 0.008 0.3000 NL BD BD BD DIELDRIN 0.000 0.1000 0.355 BD BD BD DIELDRIN 0.000 0.1000 0.1000 NL BD BD ENDOSULFANE 0.006 0.1000 0.1000 NL BD BD ENDRIN 0.000 0.1000 0.1000 NL BD BD ENDRIN ALDEHYDE 0.0000 0.1000 0.1000 NL BD BD FLUORANTHENE 0.150 0.3000 NL BD BD BD FLUORENE 0.015 0.3000 NL BD BD BD	1.0000 5.3	16.400	COPPER (Cu)
DIBENZO (A, H) ANTHRACENE 0.008 0.3000 NL BD BD DIELDRIN 0.000 0.1000 0.355 BD BD ENDOSULFAN SULFATE 0.006 0.1000 0.355 BD BD ENDOSULFAN SULFATE 0.006 0.1000 NL BD BD ENDRIN 0.000 0.1000 0.1000 NL BD BD ENDRIN 0.000 0.1000 0.1000 NL BD BD FLUORANTHENE 0.150 0.3000 NL BD BD FLUORENE 0.015 0.3000 NL BD BD FLUORENE 0.015 0.3000 NL BD BD	0.0500 NL	0.000	D-BHC
DIELDRIN 0.000 0.1000 0.355 BD BD ENDOSULFAN SULFATE 0.006 0.1000 NL BD BD BD ENDRIN 0.006 0.1000 NL BD BD BD ENDRIN 0.000 0.1000 0.1000 NL BD BD ENDRIN ALDEHYDE 0.000 0.1000 0.1000 NL BD BD FLUORANTHENE 0.150 0.3000 NL BD BD BD FLUORENE 0.015 0.3000 NL BD BD BD FLUORENE 0.015 0.3000 NL BD BD BD	0.3000 NL	0.008	DIBENZO (A, H) ANTHRACENE
ENDOSULFAN SULFATE 0.006 0.1000 NL BD BD BD ENDRIN ULFATE 0.000 0.1000 0.019 BD BD BD ENDRIN ALDEHYDE 0.000 0.1000 NL BD BD BD ENDRIN ALDEHYDE 0.000 0.1000 NL BD BD BD FLUORANTHENE 0.150 0.3000 NL BD BD BD FLUORENE 0.015 0.3000 NL BD BD BD G-BHC 0.000 0.0500 0.008 BD BD BD	0.1000 0.355	0.000	DIELDRIN
ENDRIN 0.000 0.1000 0.019 BD BD BD ENDRIN ALDEHYDE 0.000 0.1000 NL BD BD BD FLUORANTHENE 0.0150 0.3000 NL BD BD BD FLUORANTHENE 0.150 0.3000 NL BD BD BD FLUORENE 0.015 0.3000 NL BD BD BD FLUORENE 0.015 0.3000 NL BD BD BD G-BHC 0.000 0.0500 0.08 BD BD BD	0.1000 NL	0.006	ENDOSULFAN SULFATE
ENDRIN ALDEHYDE 0.000 0.1000 NL BD BD BD FD FLUORANTHENE 0.150 0.3000 NL BD BD BD BD FLUORANTHENE D D FLUORANTHENE 0.150 0.3000 NL BD BD BD BD FLUORANTHENE D <td>0.1000 0.019</td> <td>0.000</td> <td>ENDRIN</td>	0.1000 0.019	0.000	ENDRIN
FLUORANTHENE 0.150 0.3000 NL BD BD FLUORENE 0.015 0.3000 NL BD BD BD G-BHC 0.000 0.0500 0.08 BD BD BD	0.1000 NL	0.000	ENDRIN ALDEHYDE
FLUORENE 0.015 0.3000 NL BD BD G-BHC 0.000 0.0500 0.08 BD BD	0.3000 NL	0.150	FLUORANTHENE
G-BHC 0.000 0.0500 0.08 BD BD	0.3000 NL	0.015	FLUORENE
	0.0500 0.08	0.000	G-BHC
	10 D	0.1000 0.35! 0.1000 NL 0.1000 NL 0.1000 NL 0.3000 NL 0.3000 NL 0.08	0.000 0.1000 0.35! 0.006 0.1000 NL 0.000 0.1000 NL 0.000 0.1000 NL 0.150 0.3000 NL 0.015 0.3000 NL 0.015 0.3000 NL 0.015 0.3000 NL

OVERFLOW CONC µg/l	BD BD BD BD 2000 7932 BD BD BD BD BD BD BD BD BD BD BD BD BD
ELUTRIATE CONC µg/1	0.0263 BD .0263 BD .6667 BD .6667 14 7666.672 14 8230.000 8230.000 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80 8
BACKGROUND CONC µg/1	BD BD BD BD BD 2,000 2,000 2,000 14 2,000 11,00000 11,00000 11,00000 11,00000 11,00000 11,00000 11,00000000
WATER QUALITY STANDARDS ¹ µg/1	0.027 NL NL NL NL NL NL NL NL NL NL NL NL NL
DETECTION LIMIT µg/l	0.0250 0.0500 0.3000 1.0000 1.0000 0.3000 0.3000 0.0000 0.00100 0.00100000000
SEDIMENT CONC mg/kg	0.001 0.001 0.078 32.900 5080.000 1107.000 0.0000 0.00000 0.00000 0.000000
PARAMETER	HEFTACHLOR EPOXIDE HEFTACHLOR EPOXIDE INDENO(1,2,3-C,D)PYRENE IRON (Fe) LEAD (Pb) MAGNESIUM (Mg) MAGNESIUM (Mg) MAGNESIUM (Mg) MAGNESE (Mn) MAGNESE (Mn) MAGNESE (Mn) MAGNESE (Mn) MAGNESE (Mn) MACANESE (Mn) MAGNESE (M1) MACANESE (M1) MACANESE (M1) MACANESE (M1) METHOXY (Hg) METHOXYCHLOR NAPHTHALENE NICKEL (N1) TOTAL PCB'S PCB 101 PCB 101 PCB 110 PCB 110 PCB 110 PCB 113 PCB 110 PCB 113 PCB 110 PCB 113 PCB 113 PCB 113 PCB 113 PCB 113 PCB 113 PCB 123 PCB 113 PCB 113 PCB 123 PCB 123 PCB 123 PCB 123 PCB 133 PCB

RIATE OVERFLOW CONC Hg/l		BD	BD	BD	BD	BD	BD	BD	BD	BD	BD	BD	BD	BD	BD	BD	BD	BD	BD	BD	BD	BD	BD	BD	BD	020 0.0017	BU	22	BD BD	0 0001	BD. 0027	BD	BD	BD	BD	BD	BD	1100.0 010	BD
KGROUND ELUT C CONC 1 µg/1		BD	BD	BD	BD	BD	BD	BD	BD	BD	BD	BD	BD	BD	BD	BD	BD	BD	BD	BD	BD	BD	BD	BD	BD	0025 0.0	09 010	19 2100	114	101 2 LOU		CI H	BD	BD	BD	BD	BD	0.0	BD
WATER QUALITY E STANDARDS ¹ C Mg/1 U		NL	E IN	NL	NL	NL	NL	NL	TNL T	NL NL	NL	TN	NL E	NL	NL	NL	NL	NL E	NL	TN TN	INI	TN	INI	NL	NL	TN	NL NL	IN TN	NL NL	NL NT	NT.	NI.	I III	NL	NL	NL	NL	NL	AL NL
DETECTION LIMIT µg/l		0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0100.0	0.0010	0.0010	0.0010	0100.0	0100.0	0100.0	0100.0	0100.0	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
SEDIMENT CONC mg/kg	n	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.003	0000	200.0	00000	00000	0,000	0.000	0.000	0.000	0.000	0.000	0.001	0.002	0.01
PARAMETER		PCB 169	PCB 170	CB 171	CB 174	CB 177	CB 178	CB 179	CB 18	CB 180	CB 182	CB 183	CB 185	CB 187	CB 189	CB 190	CB 191	CB 194	CB 195	CB 196	CB 198	CB 200	CB 201	CB 203	CB 205	CB 206	CB 201	CB 208	22 20	CD 20	10 go		CB 40	CB 42	CB 44	CB 47	CB 49	CB 52	CB 60

mg/kg μg/l μg/l μg/l μg/l PCB 64 0.000 0.0010 NL PCB 70 0.000 0.0010 NL PCB 70 0.000 0.0010 NL PCB 71 0.000 0.0010 NL PCB 7 0.000 0.0010 NL PCB 7 0.000 0.0010 NL PCB 8 0.0010 NL NL PCB 81 0.0010 NL NL PCB 81 0.0010 NL NL PCB 82 0.0010 NL NL PCB 84 0.0010 NL NL PCB 84 0.0000 0.0010 NL PCB 91 0.0000 0.0010 NL PCB 92 0.0000 0.0010 NL PCB 92 0.0000 0.0010 NL P	10 11 11 11 11 11 11 11 11 11 11 11 11 1	μg/1 BD BD BD BD BD BD	µg/1	CONC	
PCB 64 0.000 0.0010 NL PCB 66 0.0010 0.0010 NL PCB 74 0.0010 NL PCB 74 0.0010 NL PCB 7 0.0010 NL PCB 7 0.0010 NL PCB 7 0.0010 NL PCB 7 0.0010 NL PCB 81 0.0010 NL PCB 81 0.0010 NL PCB 81 0.0010 NL PCB 84 0.0010 NL PCB 84 0.0010 NL PCB 84 0.0010 NL PCB 91 0.0010 NL PCB 91 0.0010 NL PCB 92 0.0010 NL PCB 95 0.0010 NL PCB 95 0.0000 0.0010		80 80 80 80 80 80 80 80		µg/1	
PCB 66 0.000 0.0010 NL PCB 70 0.000 0.0010 NL PCB 71 0.000 0.0010 NL PCB 77 0.000 0.0010 NL PCB 77 0.000 0.0010 NL PCB 77 0.000 0.0010 NL PCB 8 0.0010 NL NL PCB 81 0.0000 0.0010 NL PCB 81 0.0000 0.0010 NL PCB 82 0.0000 0.0010 NL PCB 84 0.0000 0.0010 NL PCB 84 0.0000 0.0010 NL PCB 87 0.0000 0.0010 NL PCB 87 0.0000 0.0010 NL PCB 91 0.0000 0.0010 NL PCB 92 0.0000 0.0010 NL PCB 92 0.0000 0.0010 NL PCB 92 0.0000 0.0010 NL PCB 93 PCB 94 0.0010 NL PCB 94 PCB PCB PCB		80 80 80 80 80 80	BD	BD	
PCB 70 0.002 0.0010 NL PCB 74 0.000 0.0010 NL PCB 77 0.000 0.0010 NL PCB 81 0.0010 NL NL PCB 82 0.0010 NL NL PCB 81 0.0010 NL NL PCB 81 0.0010 NL NL PCB 81 0.0010 NL NL PCB 82 0.0010 NL NL PCB 84 0.0010 NL NL PCB 84 0.0010 NL NL PCB 84 0.0010 NL NL PCB 87 0.0000 0.0010 NL PCB 91 0.0000 0.0010 NL PCB 92 0.0000 0.0010 NL		8D 8D 8D 8D	BD	BD	
PCB 74 0.000 0.0010 NL PCB 77 0.000 0.0010 NL PCB 81 0.000 0.0010 NL PCB 82 0.000 0.0010 NL PCB 84 0.000 0.0010 NL PCB 84 0.000 0.0010 NL PCB 84 0.000 0.0010 NL PCB 87 0.000 0.0010 NL PCB 91 0.000 0.0010 NL PCB 92 0.000 0.0010 NL PCB 93 0.001 0.0010 NL PCB 94 0.001 0.0010 NL PCB 94 0.0011 0.0010 NL		8D 8D 8D 8D	0.0014	BD	
PCB 77 0.000 0.0010 NL PCB 80 0.0010 NL NL PCB 81 0.000 0.0010 NL PCB 82 0.000 0.0010 NL PCB 84 0.000 0.0010 NL PCB 84 0.000 0.0010 NL PCB 84 0.000 0.0010 NL PCB 91 0.000 0.0010 NL PCB 92 0.000 0.0010 NL PCB 93 0.001 0.0010 NL PCB 94 0.001 0.0010 NL PCB 94 0.0011 0.0010 NL </td <td></td> <td>BD BD BD</td> <td>BD</td> <td>BD</td> <td></td>		BD BD BD	BD	BD	
PCB 8 0.000 0.0010 NL PCB 81 0.000 0.0010 NL PCB 81 0.000 0.0010 NL PCB 81 0.000 0.0010 NL PCB 82 0.000 0.0010 NL PCB 82 0.000 0.0010 NL PCB 84 0.000 0.0010 NL PCB 84 0.000 0.0010 NL PCB 84 0.000 0.0010 NL PCB 87 0.000 0.0010 NL PCB 91 0.000 0.0010 NL PCB 92 0.000 0.0010 NL PCB 92 0.000 0.0010 NL PCB 92 0.000 0.0010 NL PCB 93 0.001 0.0010 NL PCB 94 0.001 0.0010 NL PCB 95 0.001 0.0010 NL PCB 94 0.001 0.0010 NL PPDDT 0.001 <t< td=""><td></td><td>BD BD</td><td>BD</td><td>BD</td><td></td></t<>		BD BD	BD	BD	
PCB 80 0.000 0.0010 NL PCB 81 0.000 0.0010 NL PCB 82 0.000 0.0010 NL PCB 82 0.000 0.0010 NL PCB 82 0.000 0.0010 NL PCB 84 0.000 0.0010 NL PCB 84 0.000 0.0010 NL PCB 84 0.000 0.0010 NL PCB 87 0.000 0.0010 NL PCB 91 0.000 0.0010 NL PCB 92 0.001 0.0010 NL PCB 93 0.001 0.0010 NL PCB 94 0.001 0.0010 NL PCB 99 0.001 0.0010 NL PCB 99 0.001 0.0010 NL PCB 99 0.001 0.0010 NL PDD PDD 0.001 0.1000		BD	BD	BD	
PCB 81 0.000 0.0010 NL PCB 82 0.000 0.0010 NL PCB 84 0.000 0.0010 NL PCB 86 0.000 0.0010 NL PCB 91 0.000 0.0010 NL PCB 92 0.000 0.0010 NL PCB 92 0.000 0.0010 NL PCB 92 0.000 0.0010 NL PCB 95 0.000 0.0010 NL PCB 99 0.001 0.0010 NL PCB 99 0.001 0.0010 NL PCB 99 0.001 0.0010 NL PCB 99 0.0011 0.0010 NL PCB 99 0.0011 0.0010 NL PPDDD PPDDE 0.0010 0.1000 NL PPDDT 0.0010 0.0100 0.1000 NL	8888888888		BD	BD	
PCB 82 0.000 0.0010 NL PCB 84 0.000 0.0010 NL PCB 86 0.000 0.0010 NL PCB 86 0.000 0.0010 NL PCB 87 0.000 0.0010 NL PCB 91 0.000 0.0010 NL PCB 92 0.000 0.0010 NL PCB 92 0.000 0.0010 NL PCB 92 0.000 0.0010 NL PCB 93 0.000 0.0010 NL PCB 94 0.000 0.0010 NL PCB 97 0.001 0.0010 NL PCB 97 0.001 0.0010 NL PCB 97 0.001 0.0010 NL PPDD5 0.011 0.1000 NL PPD5 0.011 0.1000 NL PPD5 0.0110 0.1000 NL	888888888	BD	BD	BD	
PCB 84 0.000 0.0010 NL PCB 86 0.000 0.0010 NL PCB 87 0.000 0.0010 NL PCB 91 0.000 0.0010 NL PCB 91 0.000 0.0010 NL PCB 92 0.000 0.0010 NL PCB 95 0.000 0.0010 NL PCB 97 0.000 0.0010 NL PCB 97 0.000 0.0010 NL PCB 97 0.000 0.0010 NL PCB 99 0.001 0.0010 NL PCB 97 0.001 0.0010 NL PPDDD PPDDT 0.011 0.1000 NL	88888888	BD	BD	BD	
PCB 86 0.000 0.0010 NL PCB 87 0.000 0.0010 NL PCB 91 0.000 0.0010 NL PCB 92 0.000 0.0010 NL PCB 95 0.000 0.0010 NL PCB 97 0.000 0.0010 NL PCB 99 0.0010 NL NL PCB 99 0.0010 NL NL PCB 99 0.0010 NL NL PCB 0.0011 0.0010 NL NL PCB 0.0011 0.0010 NL NL PCB 0.0011 0.0010 NL NL PPDDD 0.0011 0.1000 NL NL PPDDT 0.0010 0.1000 NL NL	8888888	BD	BD	BD	
PCB 87 0.000 0.0010 NL PCB 91 0.000 0.0010 NL PCB 92 0.000 0.0010 NL PCB 92 0.000 0.0010 NL PCB 95 0.000 0.0010 NL PCB 97 0.000 0.0010 NL PCB 99 0.001 0.0010 NL PFDDD 0.0011 0.1000 NL PPDDE 0.0011 0.1000 NL PPDDT 0.011 0.1000 NL	888888	BD	BD	BD	
PCB 91 0.000 0.0010 NL PCB 92 0.000 0.0010 NL PCB 95 0.000 0.0010 NL PCB 97 0.000 0.0010 NL PCB 99 0.0010 NL NL PCB 99 0.0010 NL NL PCB 99 0.0010 NL NL PCB 0.001 0.0010 NL NL PEDDD 0.0011 0.0010 NL PL PPDDD 0.011 0.1000 NL PL PPDDT 0.010 0.1000 NL NL	88888	BD	BD	BD	
PCB 92 0.000 0.0010 NL PCB 95 0.000 0.0010 NL PCB 97 0.000 0.0010 NL PCB 99 0.0010 NL NL PCB 99 0.0010 NL NL PCB 99 0.0010 NL NL PCB 0.001 0.0010 NL NL PCB 0.001 0.0010 NL NL PEDDD 0.011 0.1000 NL PLDD00 NL PPDDT 0.010 0.1000 NL NL NL NL	무무무무	BD	BD	BD	
PCB 95 0.000 0.0010 NL PCB 97 0.000 0.0010 NL PCB 99 0.001 0.010 NL PCB 99 0.001 0.010 NL PCB 99 0.001 0.0010 NL PCB 0.001 0.0010 NL NL PHENANTHRENE 0.085 0.3000 NL PPDDD 0.011 0.1000 NL PPDDE 0.011 0.1000 NL PPDDT 0.010 0.1000 NL	금문금	BD	BD	BD	
PCB 97 0.000 0.0010 NL PCB 99 0.001 0.0010 NL PHENANTHRENE 0.085 0.3000 NL POTASSIUM (K) 2340.000 200.0000 NL PPDDD 0.011 0.1000 NL PPDDF 0.010 0.1000 NL	L L	BD	0.0010	0.0017	
PCB 99 0.001 0.0010 NL PHENANTHRENE 0.085 0.3000 NL POTASSIUM (K) 2340.000 200.0000 NL PPDDD 0.011 0.1000 NL PPDDE 0.0010 0.1000 NL PPDDF 0.010 0.1000 NL	IL	BD	BD	BD	
PHENANTHRENE 0.085 0.3000 NL POTASSIUM (K) 2340.000 200.0000 NL PPDDD 0.011 0.1000 NL PPDDE 0.0010 0.1000 NL PPDDE 0.0100 0.1000 NL		BD	BD	BD	
POTASSIUM (K) 2340.000 200.0000 NL PPDDD 0.011 0.1000 NL PPDDE 0.008 0.1000 NL PPDDT 0.010 0.1000 NL	I	BD	BD	BD	
PPDDD 0.011 0.1000 NL PPDDE 0.008 0.1000 NL PPDDT 0.010 0.1000 NL	IL 56	5400.000 39	066.6680	32220	
PPDDE 0.008 0.1000 NL PPDDT 0.010 0.1000 NL	IL	BD	BD	BD	
PPDDT 0.010 0.1000 NL	IL.	BD	BD	BD	
	IL	BD	BD	BD	
PYRENE 0.164 0.3000 NL	IL	BD	BD	BD	
SELENIUM (Se) 1.630 2.0000 20	0	19.000	24.3333	14	
SILVER (Ag) 0.683 1.0000 2.3	2.3	BD	1.3333	H	
THALLIUM (T1) 0.000 2.0000 NL	IL	BD	BD	BD	
TOC-TOTAL ORGANIC CARBON 7603.000 3000.0000 BD	D	BD			
TOXAPHENE 0.000 0.0500 0.2	0.21	BD	BD	BD	
VANADIUM (V) 37.800 2.0000 NL	JL.	4.0000	6.6667	BD	
ZINC 131.000 10.0000 95	95	53.0000	74.6667	131	
a-CHLORDANE 0.001 0.0500 0.0	0.045	BD	BD	BD	
b-CHLORDANE 0.004 0.0500 0.0.	0.045	BD	BD	BD	
¹ More stringent acute value of the freshwater or marine str	stream quality	objectives.			
BD = helow detection		1			
NI. = not listed					
0.0 = below detection for sediment conc. (mg/kg)					

times. The trimmed Spearman-Karber method was used to calculate LC_{50} values. The bioassay report is attached as Appendix D.

Coarse-grained site

Survival in test concentrations from the coarse-grained site ranged from 100 to 88 percent for *Mysidopsis bahia* and from 88 to 68 percent for *Menidia beryllina*. Exposures in elutriate test concentrations from the coarsegrained site did not adversely affect survival of either test species. Since neither test species had mortality values greater than 50 percent, an LC_{50} value could not be calculated.

Fine-grained site

Survival in test concentrations from the fine-grained site ranged from 90 to 0 percent with 0-percent survival in the 50- and 100-percent exposures for *Mysidopsis bahia*. Survival for *Menidia beryllina* ranged from 98 to 0 percent with 4- to 0-percent survival in the 50- and 100-percent elutriate treatments. An LC_{50} value of 30.04 percent was calculated for *Mysidopsis bahia* and an LC_{50} value of 31.66 percent was calculated for *Menidia beryllina*. Mortality observed from exposures in elutriate test concentrations was attributed to the high level of NH₃. In the short term, high levels of NH₃ are common in predominately fine-grained sites during dredging operations.

4 Summary and Conclusions

Based on the results of the study, the following conclusions can be made:

- a. Loading data at the coarse-grained site shows a gain of 130 percent over a period of 57 min after overflow began. Based on the roundtrip travel time required to the disposal site and the amount of material retained in the hopper, rates of return greater than 50 percent may be realized for the coarse-grained material. Loading data at the fine-grained site show a gain of 18 percent over a period of 21 min after overflow began. Based on the round-trip travel time required to the pump-out site and the amount of material retained in the hopper, there was no economic benefit to overflow for the fine-grained material. In both instances, rates of return are also based on the assumption that all material in the overflow will return to the channel and will require redredging.
- b. Using the same economic assumptions as discussed above, about a 20-percent return may be realized from a material containing about 60 percent sand and about a 40-percent return may be realized from a material containing about 80 percent sand.
- c. Based on the water chemistry analysis at the two sites, no contaminants of concern caused a problem because of the dredging operation. None of the contaminants of concern exceeded water quality objectives in the overflow at the coarse-grained site. At the coarsegrained site, only dissolved copper was above the standard in the background. Samples taken for dissolved copper at the hopper overflow, however, were within standards. This indicates a scavenging of the metal by the suspended material occurred during the dredging and overflow process. At the fine-grained site, only zinc and endrin were measured at the overflow to be above the standard. However, the predicted elutriate for both zinc and endrin were measured at below detection levels.
- *d*. The plume study results showed that the coarse-grained material settled quite rapidly and that no lateral dispersion of the plume out of the channel was observed. No significant change above background levels could be detected. At 1 hr elapsed time following

the end of the overflow dredging operation, the levels of suspended material had returned to background conditions. At the finegrained site, an increase in the suspended material was observed. However, after an elapsed time of 1 hr following the completion of the overflow dredging operation, levels of suspended materials had returned to background conditions. Again, no lateral dispersion of the dredge plume beyond the channel limits was observed.

- e. The sedimentation portion of the study confirmed what was observed during the plume study. At the coarse-grained site, there was evidence that recent sedimentation had occurred at several of the stations, possibly a result of dredging operations. But no indication of newly deposited dredged material was observed at stations outside the edge of the navigation channel. At the fine-grained site, some sediment layering was found even though no evidence of recent physical disturbance was detected at any of the stations. Again, no indication of newly deposited the edge of the navigation channel.
- *f*. Although the sampling station coverage was not extensive, the risk of significant sedimentation as a consequence of the hopper dredging operations appears to be restricted to the bottom and side slopes of the channel.
- g. The elutriate test results were consistent with and slightly conservative as compared to the overflow samples, indicating that the elutriate test is a valid prediction of overflow quality for the Delaware system.
- *h*. The bioassay analysis showed no adverse effects to exposures of fish and crustaceans species being exposed to the elutriate samples from the coarse-grained site. Some species mortality were observed using elutriates from the fine-grained site, but was determined to be caused from high levels of NH_{3} , which is a common short-term by-product of dredging in fine-grained material.
- *i*. The overall results of the study indicate that overflow meets the applicable water quality objectives and has no measurable physical impact outside the navigation channels. The loading data indicate that overflow in coarse-grained reaches results in significant load gains, while load gains in fine-grained reaches are small. Based on these results, overflow in coarse-grained reaches should be considered for future operations.

Appendix A Delaware River Sediment and Water Quality Analysis

Delaware River Sediment and Water Quality Analysis (Coarse and Fine-Grained Sites)

Metscoar	- Metals (Coarse-Grained Site)
PAHscoar	- PAH's (Coarse-Grained Site)
Pestcoar	- Pesticides (Coarse-Grained Site)
PCBscoar	- PCB's (Coarse-Grained Site)
Tsscoar	- Total Suspended Solids (Coarse-Grained Site)
Nutcoar	- Nutrients (Coarse-Grained Site)
Spgrcoar	- Specific Gravity and %Moisture (Coarse-Grained Site)
Metsfine	- Metals (Fine-Grained Site)
PAHsfine	- PAH's (Fine-Grained Site)
Pestfine	- Pesticides (Fine-Grained Site)
PCBsfine	- PCB's (Fine-Grained Site)
Tssfine	- Total Suspended Solids (Fine-Grained Site)
Nutfine	- Nutrients (Fine-Grained Site)
Spgrfine	- Specific Gravity and % Moisture (Fine-Grained Site)

		Delaware River Water Analysis (Coan	se-Grained Site)							
MPLE	SAMPLE	DESCRIPTION	SB	AS	BE	CD	CR	cu	PB	HG
		Detection Limit (mg/l)	0.003	0.002	0.002	0.0002	0.002	0.001	D.001	0,00020
ater	80827 80735	Plume Monitoring Background, dissolved Background, total	0.003	0.044	0.002	0.0002	0.002	0 013	0.001	0.00020
ater	80828	0-10 min, overflow, dissolved	0.003	0.044	0.002	0.0002	0.002	0.011	0.001	0.00020
ater	80829	10-20 min, overflow, dissolved	0.003	0.044	0.002	0.0002	0.002	0.010	0.001	0.00020
ater	80830	0-10 min, overflow, total	0,006	0.045	0.001	0.0002	0.002	0.013	0.001	0.00020
ater	80737	10-20 min, overflow, total	0.003	0.046	0.001	0.0002	0.002	0.012	0.001	0.00020
ater	80738	20-30 min, overflow, total	0.003	0.045	0.001	0.0002	0 002	0.011	0.001	0.00020
ater	80831	0-10 min, non-overflow, dissolved	0.003	0.047	0.002	0 0002	0.002	0.012	0.001	0.00020
ater	80832	10-20 min, non-overflow, dissolved	0.003	0.048	0.002	0.0004	0.002	0.011	0.001	0.00020
ater	80739	0-10 min, non-overflow, total	0.003	0.044	0.001	0.0002	0.002	0.012	0.002	0.00020
ater	80740	10-20 min, non-overflow, total	0.003	0.048	0.001	0.0002	0.002	0.011	0.001	0.00020
ater	80741	20-30 min, non-overflow, total	0.003	0.044	0.001	0.0002	0.002	0.010	0.001	0.00020
	Cial I	Hopper Inflow Monitoring								
ater	80780	3& 6 min, dissolved 9&12 min, dissolved	0.003	0.051	0.001	0.0002	0.002	0.007	0.001	0.00020
ater	80782	15&18 min, dissolved	0,003	0.046	0.001	0.0002	0.002	0.006	0.001	0.00020
ater	80783	21&24 min, dissolved	0.003	0.048	0.001	0.0002	0.002	0.007	0.001	0.00020
ater	80784	27&30 min, dissolved 38, 6 min, total	0.003	0.050	0.001	0.0002	0.002	0.006	0.001	0.00020
ater	80669	9&12 min, total	0.003	0.070	0.002	0.0010	0.088	0.062	0.140	0.00064
ater	80670	15&18 min, total	0.003	0.069	0.002	0.0005	0.140	0.094	0.132	0.00129
ater ater	80671 80672	21&24 min, total 27&30 min, total	0.003	0.105	0.007	0.0008	0.332	0.127	0.292	0.00369
		In the second second								
ater	80785	2& 4 min_dissolved	0.003	0.045	0.001	0.0002	0.002	0.005	0.001	0.00020
ater	80786	6& 8 min, dissolved	0.003	0.048	0.001	0.0002	0.002	0.005	0.001	0.00020
ater	80787	10&12 min, dissolved	0.003	0.047	0.001	0.0002	0.002	0.005	0.001	0.00020
ater	80788	18820 min, dissolved	0.003	0.046	0.001	0.0002	0.002	0.005	0.001	0.00020
ater	80674	2& 4 min, total	0.006	0.047	0.001	0.0027	0 059	0.031	0.080	0.00053
ater	80675	6& 8 min, total	0.003	0.052	0.002	0.0017	0.074	0.030	0.104	0.00113
ater	80676	14816 min, total	0.003	0.052	0.002	0.0013	0.080	0.035	0.049	0.00056
ater	80678	18&20 min, total	0.003	0.046	0.001	0.0002	0.048	0,018	0.040	0.00046
		Site Water								
ater	81648	Sample 1 Total	0.003	0.034	0.001	0.0002	0.005	0.027	0.003	0.00020
ater	81649 81650	Sample 2 Total Sample 3 Total	0.003	0.037	0.001	0.0002	0.002	0.021	0.002	0.00020
		Elutriate								
ater	81654	Sample 1 Dissolved	0.003	0.050	0.001	0.0002	0.002	0.005	0.001	0.00020
ater	81655	Sample 2 Dissolved	0.003	0.052	0.001	0.0002	0.002	0.006	0.001	0.00020
ater	81651	Sample 3 Dissolved Sample 1 Total	0.003	0.040	0.001	0.0002	0.002	0.006	0.002	0.00020
ater	81652	Sample 2 Total	0.003	0.042	0.001	0.0002	0.002	0.005	0.001	0.00020
ater	81653	Sample 3 Total	0.003	0.043	0.001	0.0002	0.002	0.005	0.001	0.00020
MPLE	SAMPLE	DESCRIPTION	SB	AS	BE	CD	CR	cu	PB	HG
		Detection Limit (mg/kg)	0.30	0.20	0,1	0,020	0.2	0.10	1,0	0.020
		Insitu Sediment		2.52				2.00		0.001
diment	81726	Sample #1 Sample #2	0.30	2.90	0.1	0.020	5,6	1.30	12.9	0 110
diment	81728	Sample #3	0.30	3.10	0.2	0.020	7.0	2.70	12,0	0.084
3 - Antim	ony A	5 - Arsenic BE - Beryllium C	CD - Cadmium	CR - Chromium	CU-0	Copper	PB - Lead	HG - Mercury		
DLD - les ilues bek	s than value ow less than	s values are estimated results. Results	are less than the	reporting limit.						
				Dana 1						

		Delaware River Water Analysis (Coarse-	Grained Site)							
AMPLE	SAMPLE	DESCRIPTION	NI	SE	AG	n	ZN	AL	ВА	CA
		Detection Limit (mg/l)	0.001	0.002	0.001	0.002	0.010	0.025	0.002	0.200
/ater	80827	Plume Monitoring Background, dissolved	0.009	0.152	0.001	0.002	0.010	0.025	0 039	323
Vater	80735	Background, total	0.009	0.138	0.003	0.002	0.017	0.644	0.016	254
Vater Vater	80828 80829	0-10 min, overflow, dissolved 10-20 min, overflow, dissolved	0.008	0.150 0.146	0 001	0.002	0.010	0.025	0.042	334 369
Vater	80830	20-30 min, overflow, dissolved	0.012	0 158	0.001	0.002	0.011	0.025	0.077	331
Vater	80737	10-20 min, overflow, total	0.010	0.153	0 004	0.002	0.017	0.984	0 016	261
Vater	80738	20-30 min, overflow, total	0.008	0.157	0.003	0.002	0.013	0.676	0.016	260
Water Water	80831 80832	0-10 min, non-overflow, dissolved 10-20 min, non-overflow, dissolved	0.009	0.158	0.001	0.002	0.010	0.025	0.038	319 314
Vater	80833	20-30 min, non-overflow, dissolved	0.008	0.153	0.001	0.002	0.010	0.025	0.043	319
Vater Vater	80739	D-10 min, non-overflow, total	0.007	0.149	0.003	0.002	0.010	0 716	0.016	243
Vater	80741	20-30 min, non-overflow, total	0.008	0.154	0.003	0.002	0.012	0.664	0.016	247
		Happer Inflow Monitoring								
Nater	80780	3& 6 min, dissolved	0.010	0.175	0.001	0.002	0.038	0.025	0 209	374
Water	80781	9&12 min, dissolved	0.008	0.149	0.001	0.002	0.025	0.025	0.100	329
Water	80783	21&24 min, dissolved	0.009	0 163	0.001	0.002	0.043	0.025	0.139	360
Water	80784	27&30 min, dissolved	0.009	0.167	0.001	0.002	0.048	0.107	0.207	393
Water	80669	9&12 min, total	0.060	0.062	0.012	0.002	0.728	29.9	0.090	648
Water	80670	15&18 min, total	0.072	0.103	0.014	0.002	0 366	52.4	0.147	460
Water Water	80671 80672	21&24 min, total 27&30 min, total	0.152	0.113	0.015	0.002	0.719	120.0	0.223 0.316	1120
Water	80785	Hopper Overflow Monitoring 28, 4 min, dissolved	0 008	0.155	0.001	0.002	0.038	0.025	0.148	345
Water	80786	6& 8 min, dissolved	0.009	0.165	0.001	0.002	0.028	0.025	0.108	347
Water	80787	10&12 min, dissolved	0.009	0.165	0.001	0.002	0.042	0.025	0 166	361
Water	80789	18&20 min, dissolved	0.008	0.153	0.003	0.002	0,012	0.025	0.084	319
Water	80674	2& 4 min, total	0.044	0.053	0.007	0.002	0.330	20.9	0.088	480
Water	80675	10&12 min, total	0.048	0.089	0.006	0.002	0.609	25.2	0.090	400
Water	80677	14&16 min, total	0.035	0.113	0.054	0 002	0.155	18.6	0.066	380
Nater	80678	18&20 min, total	0.026	0.118	0.011	0.002	0.118	18.2	0.060	345
		Site Water	1.11			2.5				
Water	81648	Sample 1 Total	0.005	0.115	0.003	0.002	0.012	1.260	0.015	322
Nater	81650	Sample 3 Total	0.004	0.134	0.004	0.002	0.010	0.064	0.012	307
		Flutriate								
Water	81654	Sample 1 Dissolved	0.005	0.172	0.001	0.002	0.022	0.025	0.073	318
Nater	81655	Sample 2 Dissolved	0.005	0 170	0.001	0.002	0.031	0.025	0.097	318
Nater	81651	Sample 1 Total	0.006	0.135	0.004	0.002	0.010	1.140	0 018	309
Water	81652	Sample 2 Total	0.005	0.140	0.003	0.002	0.010	1 140	0.018	304
vater	81653	Sample 3 Total	0.005	0.141	0.003	0.002	0.010	1.090	0.026	437
AMPLE	SAMPLE	DESCRIPTION	NI	SE	AG	π	ZN	AL	BA	CA
		Detection Limit (mg/kg)	0.5	0.200	0 100	0.200	1.0	1	0,1	20
		Insitu Sediment						4500		40000
Sediment	81726 81727	Sample #1 Sample #2	3.2	0.800	0.100	0.200	29.9	1580	5.7	11600
Sediment	81728	Sample #3	3.5	0.899	0.499	0.200	28.7	1720	4.3	9820
II - Nickel	SE - S	ielenium AG - Silver TL - Thall	ium ZN-2	Cinc AL -	Aluminum	BA - Barium	CA - Calciu	m		
BOLD - les /alues bel	s than value ow less than	s values are estimated results. Results are	less than the re	porting limit.						

Met	scoar	

SAMPLE	SAMPLE	DESCRIPTION	co	FE	MG	MN	к	NA	v	
		Detection Limit (mg/l)	0.002	0,020	0.200	0.001	0,200	0.200	0.001	
		Plume Monitoring								
Water	80827 80735	Background, dissolved. Background, total	0.001	0.020	961 968	0 006	284 291	9,540 7,970	0.002	
							68			
Water	80828	0-10 min, overflow, dissolved	0.001	0.020	994	0.002	294	8,280	0.002	
Water	80829	10-20 min, overflow, dissolved	0.001	0.020	985	0.002	290	9,230	0.002	
Water	80736	0.10 min, overflow, dissolved	0.001	0.312	940	0.004	302	0,090	0.002	
Water	80737	10-20 min overflow total	0.001	0.364	1030	0.015	368	8 580	0.004	
Water	80738	20-30 min, overflow, total	0.001	0.184	944	0.009	324	7,880	0.004	
Water	80831	0-10 min, non-overflow, dissolve	d 0.001	0.020	992	0.005	292	8,930	0.002	
Water	80832	10-20 min, non-overflow, dissolve	d 0.001	0.020	986	0.006	288	8,510	0.002	
Water	80833	20-30 min, non-overflow, dissolve	d 0.001	0.020	957	0.005	282	9,040	0.002	
Water	80739	10 20 min, non-overflow, total	0.001	0.200	908	0.014	318	7,480	0.005	
Water	80741	20-30 min, non-overflow, total	0.001	0.192	916	0.008	334	8,120	0.003	
Water	80780	Hopper Inflow Monitoring 3& 6 min. dissolved	0.002	0.020	1003	0.011	308	10,900	0.003	
Water	80781	9&12 min, dissolved	0.002	0.020	1007	0.002	306	8,950	0.004	
Water	80782	15&18 min, dissolved	0.002	0.029	1023	0.002	310	9,110	0.004	
Water	80783	21&24 min, dissolved	0.002	0.020	1052	0.002	317	10,200	0.004	
Water	80784	27&30 min, dissolved	0.002	0.074	1035	0,099	315	9,150	0.006	
Water	80668	3& 6 min, total	0.060	98.0	1050	3.770	316	8,400	0.128	
Water	80670	15818 min, total	0.042	717	069	1.500	319	8,370	0.124	
Water	80671	21824 min total	0.052	288.0	1090	4 440	338	8,530	0.328	
Water	80672	27&30 min, total	0.056	218.0	1020	3 200	349	8,660	0.408	
		Income the second second second								
Water	80785	78 4 min dissolved	0.002	0.020	993	0.001	299	8 750	0.004	
Water	80786	6& 8 min dissolved	0.002	0.020	962	0.001	290	9,240	0.004	
Water	80787	10&12 min, dissolved	0.002	0.020	999	0.001	302	8,750	0.004	
Water	80788	14&16 min, dissolved	0.002	0.020	1,000	0.001	303	8,960	0.004	
Water	80789	18&20 min, dissolved	0.002	0.020	990	0.001	294	8,870	0.004	
Water	80674	2& 4 min, total	0.023	66.4	1,060	1.130	333	8,800	0.084	
Water	80675	6& 8 min, total	0.026	70.4	1,060	1 470	335	9,170	0.104	
vvater	806/6	10&12 min, total	0.034	92.0	1 000	1.420	308	7,980	0.105	
Water	80678	18&20 min, total	0.009	28.2	984	0.544	310	9,170	0.060	
-		Site Water								
Water	81648	Sample 1 Total	0.002	0.837	998	0.028	306	8,370	0.003	
Water	81649 81650	Sample 2 Total Sample 3 Total	0.002	0.048	974 968	0.004	289	8,780	0.001	
Water	81654	Elutriate Sample 1 Dissolved	0.002	0.020	1.020	0 002	303	8,820	0.002	
Water	81655	Sample 2 Dissolved	0.002	0.020	1,030	0.001	304	9,250	0.001	
Water	81656	Sample 3 Dissolved	0.002	0.020	1,030	0 002	304	9,040	0.002	
Water	81651	Sample 1 Total	0.002	0.742	982	0.024	292	8,620	0.004	
Water	81652	Sample 2 Total	0.002	0.632	991	0.019	294	8,760	0.003	
Water	81653	Sample 3 Total	0.002	0.799	1,400	0.024	423	12,300	0.004	
SAMPLE	SAMPLE	DESCRIPTION	co	FE	MG	MN	к	NA.	v	% Moisture
		Detection Limit (mg/kg)	0.1	2	20	0.1	20	20	0.10	
		Insitu Sediment								
Sediment	81726	Sample #1	2.2	5,810	1,260	91.7	443	2180	4.10	13.8
Sediment	81727	Sample #2 Sample #3	2.4	6,040	1,330	95 2	474	1920	4.30	13.8
osament	411.44		1	1.	1.1.1	6.2				14.4
CO + Coba	alt FE	- Iron MG - Magnesium	MN - Manganese	K - Potassium	NA - So	dium V - V	/anadium			
Values bel	ow less than	values are estimated results. Resu	ults are less than the	reporting limit.						
				Page	3					

PAHscoar

TYPE	SAMPLE	DESCRIPTION	NAPHTH	ACENAY	ACENAP	FLUORE	PHENAN	ANTRAC	FLANT
		Detection Limit (mg/l)	0.0003	0 0003	0.0003	0 0003	0.00030	0.00030	0.000
		Plume Monitoring						alexand.	10000
Water	80848	Background, dissolved Background, total	0.0003	0.0003	0.0003	0.0003	0.00030	0.00030	0.000
rater	00100	Busigiouna, total			0.0000	0.0000	0.00000	0.00000	0.000
Water	80849	0-10 min, overflow, dissolved	0.0003	0.0003	0.0003	0.0003	0.00030	0.00030	0.000
Water	80850	1D-20 min, overflow, dissolved	0.0003	0.0003	0.0003	0.0003	0.00030	0.00030	0.000
Water	80851	20-30 min, overflow, dissolved	0.0003	0.0003	0.0003	0.0003	0.00030	0.00030	0.000
Water	80764	0-10 min, overflow, total	0.0003	0.0003	0.0003	0.0003	0.00030	0.00030	0.000
Water	80765	10-20 min, overflow, total	0.0003	0.0003	0,0003	0.0003	0.00030	0.00030	0.000
Water	80766	20-30 min, overflow, total	0.0003	0.0003	0,0003	0.0003	0.00030	0.00030	0.000
Mater	80952	0.10 min pop-overflow dissolved	0.0003	0.0003	0 0003	0.0003	0 00030	0.00030	0.000
Water	80853	10-20 min non-overflow dissolved	0.0003	0.0003	0.0003	0.0003	0.00030	0.00030	0.000
Water	80854	20-30 min non-overflow dissolved	0.0003	0.0003	0.0003	0.0003	0.00030	0.00030	0.000
Water	80767	0-10 min, non-overflow, total	0.0003	0.0003	0.0003	0.0003	0.00030	0.00030	0.000
Water	80768	10-20 min, non-overflow, total	0.0003	0.0003	0.0003	0.0003	0.00030	0.00030	0.000
Water	80769	20-30 min, non-overflow, total	0.0003	0.0003	0.0003	0.0003	0.00030	0.00030	0.000
		Hopper Inflow Monitoring							
Water	80810	3& 5 min, dissolved	0.0003	0.0003	0.0003	0.0003	0.00030	0.00030	0.000
Water	80811	9&12 min, dissolved	0.0003	0.0003	0.0003	0.0003	0.00030	0.00030	0.000
Water	80812	21824 min, dissolved	0.0003	0.0003	0.0003	0.0003	0.00030	0.00030	0.000
Water	80813	27824 min, dissolved	0.0003	0.0003	0.0003	0.0003	0.00030	0.00030	0.000
Water	80716	38. 6 min, dissolved	0.0003	0.0003	0.0003	0.0003	0.00030	0.00030	0.000
Mater	80717	9812 min, total	0.0003	0.0003	0.0003	0.0003	0.00030	0.00030	0.000
Water	80718	15818 min total	0.0003	0.0003	0.0003	0.0003	0.00030	0 00030	0.000
Water	80719	21824 min, total	0.0003	0.0003	0.0003	0.0003	0.00016	0.00030	0.000
Water	80720	27&30 min, total	0.0003	0.0003	0.0003	0.0003	0.00012	0.00030	0.000
		Hopper Overflow Monitoring							
Water	80815	2& 4 min, dissolved	0.0003	0.0003	0.0003	0.0003	0.00030	0.00030	0.000
Nater	80816	6& 8 min, dissolved	0.0003	0.0003	0.0003	0.0003	0.00030	0.00030	0.00
Nater	80817	10&12 min, dissolved	0.0003	0.0003	0.0003	0.0003	0.00030	0.00030	0.00
Nater	80818	14816 min, dissolved	0.0003	0.0003	0.0003	0.0003	0.00030	0.00030	0.000
Water	80819	18820 min, dissolved	0.0003	0.0003	0.0003	0.0003	0.00030	0.00030	0.000
/vater	80722	28 4 min, total	0.0006	0.0003	0.0003	0.0003	0.00030	0.00030	0.000
Nater	80723	58 8 min, total	0.0006	0.0003	0.0003	0.0003	0.00030	0.00030	0.000
Valer	80724	14216 min total	0.0006	0.0003	0.0003	0.0003	0.00073	0.00018	0.000
Water	80726	18&20 min, total	0.0006	0.0003	0.0003	0.0003	0.00030	0.00030	0.000
	1.5725	Site Water	The second second	19222	1 1212	C TILL			1222
Water	81630	Sample 1 Total	0.0003	0.0003	0.0003	0.0003	0.00030	0.00030	0.000
Nater Nater	81631	Sample 2 Total Sample 3 Total	0.0003	0.0003	0.0003	0.0003	0.00030	0.00030	0.000
Tates	01002	oumple o rolui		210332					
		Elutriate							
Nater	81636	Sample 1 Dissolved	0.0003	0.0003	0.0003	0.0003	0.00030	0.00030	0.000
Vater	81637	Sample 2 Dissolved	0.0003	0.0003	0.0003	0.0003	0.00030	0.00030	0.00
Vater	81638	Sample 3 Dissolved	0.0003	0.0003	0.0003	0.0003	0.00030	0.00030	0.00
Valer	81633	Sample 1 Total	0.0003	0.0003	0.0003	0.0003	0.00030	0.00030	0.00
Vater	81634	Sample 2 Total	0.0003	0.0003	0.0003	0.0003	0.00030	0.00030	0.00
Vater	81635	Sample 3 Total	0.0003	0.0003	0.0003	0.0003	0.00030	0.00030	0.00
AMPLE	SAMPLE	DESCRIPTION	NAPHTH	ACENAY	ACENAP	FLUORE	PHENAN	ANTRAC	FLANT
YPE	ID								
		Detection Limit (mg/kg)	0.011	0.011	0.011	0.011	0.0110	0.011	0.0
		Insitu Sediment							
Sediment	81702	Sample #1	0.011	0.011	0.011	0.011	0.0110	0.011	0.0
Sediment	81703	Sample #2	0.011	0.011	0.011	0.011	0.0038	0.011	0.0
ediment	81704	Sample #3	0.011	0.011	0.011	0.011	0.0110	0.011	0.0
APHTH -	Naphthaler	e ACENAY - Acenaphthylene	ACENAP - A	cenaphthene	FLUORE -	Fluorene	PHENAN - Phe	nanthrene	
ANTRAC -	Anthracene	FLANTHE - Fluoranthene							
/alues bel	ow less than	values are estimated results. Results	are less than th	e reporting limit	8				
				E Contra de					

PAHscoar

SAMPLE	SAMPLE	DESCRIPTION	PYRENE	CHRYSE	BAANTHR	BBFLANT	BKFLANT	BAPYRE	I123PYR
		Detection Limit (mg/l)	0.00030	0.00030	0.0003	0.00030	0.00030	0 00030	0 00030
		State and State a							
Mator	00040	Plume Monitoring	0 00070	0.00020	0.0002	0 00020	0.00020	0.00020	0 00020
Water	80763	Background, total	0.00030	0.00030	0.0003	0.00030	0.00030	0.00030	0.00030
Minter	909.40	0.10 min overflow dissolved	0 00020	0.00020	0.0002	0.00030	0.00020	0.00020	0.00020
Water	80843	10-20 min, overflow, dissolved	0.00030	0.00030	0.0003	0.00030	0.00030	0.00030	0,00030
Water	80850	20-20 min, overflow, dissolved	0.00030	0.00030	0.0003	0.00030	0.00030	0.00030	0.00030
Water	20764	0.10 min, overnow, dissolved	0.00030	0.00030	0.0003	0.00030	0.00030	0.00030	0.00030
Water	80764	10.20 min, overflow, total	0.00030	0.00030	0.0003	0.00030	0.00030	0.00030	0.00030
Water	80766	20-30 min, overflow, total	0.00030	0.00030	0.0003	0.00030	0.00030	0.00030	0.00030
in the second	00050	0.10 million and standard department	0.00000	0.00020	0 0000	0.00000	0.00000	0.00000	
vvater	80852	0-10 min, non-overriow, dissolved	0.00030	0.00030	0.0003	0.00030	0.00030	0.00030	0.00030
vvater	80853	10-20 min, non-overnow, dissolved	0.00030	0.00030	0.0003	0.00030	0.00030	0.00030	0.00030
water	80854	20-30 min, non-overnow, dissolved	0.00030	0.00030	0.0003	0.00030	0.00030	0.00030	0,00030
vvaler	80767	10-10 min, non-overnow, total	0.00030	0.00030	0.0003	0.00030	0.00030	0.00030	0.00030
vvater	80768	10-20 min, non-overnow, total	0.00030	0.00030	0.0003	0.00030	0,00030	0.00030	0.00030
vvaler	60/09	20-30 min, non-oveniow, total	0.00050	0.00030	0.0003	0.00030	0.00050	0.00050	0,00030
		(Income for Description of the second							
14/0400	00040	Hopper Innow Monitoring	0.00020	0.00020	0.0002	0.00030	0 00020	0.00020	0.00020
vvater	80810	36 6 min, dissolved	0.00030	0.00030	0.0003	0.00030	0.00030	0.00030	0.00030
vvater	80811	Sed 2 min, dissolved	0.00030	0.00030	0.0003	0.00030	0.00030	0.00030	0.00030
vvater	80812	15& 18 min, dissolved	0.00030	0.00030	0.0003	0.00030	0.00030	0.00030	0.00030
water	80813	21824 min, dissolved	0.00030	0.00030	0.0003	0.00030	0.00030	0.00030	0.00030
water	80814	27&30 min, dissolved	0.00030	0.00030	0.0003	0.00030	0.00030	0.00030	0.00030
Water	80/16	38 6 min, total	0.00030	0,00030	0.0003	0.00030	0.00030	0.00030	0.00030
vvater	80/1/	9812 min, total	0.00030	0.00030	0.0003	0.00030	0,00030	0.00030	0.00030
vvater	80718	16&18 min, total	0.00013	0.00030	0.0003	0.00030	0.00030	0.00030	0.00030
vvater	80719	21624 min, total	0.00019	0.00010	0,0003	0.00010	0.00012	0.00030	0.00030
vvater	80720	27830 min, total	0.00017	0.00012	0.0003	0.00010	0.00010	0.00030	0.00030
		Lisseer Overfley Menitering							
Mator	-00015	Ropper Overlow Monitoring	0.00020	0.00030	0.0007	0.00030	0 00030	0.00030	0.00030
vvater	80815	20, 4 min, dissolved	0.00030	0.00030	0.0003	0.00030	0.00030	0.00030	0.00030
Water	80818	10812 min, dissolved	0.00030	0.00030	0.0003	0.00030	0.00030	0.00030	0.00030
Water	00017	14216 min, dissolved	0.00030	0.00030	0.0003	0.00030	0.00030	0.00030	0.00030
vvater	80810	146 10 min, dissolved	0.00030	0.00030	0.0003	0.00030	0.00030	0.00030	0.00030
vvater	80819	18820 min, dissolved	0.00030	0.00030	0.0003	0,00030	0.00030	0.00030	0.00030
vvater	80722	26. 4 min, total	0.00030	0.00030	0.0003	0.00030	0.00030	0,00030	0.00030
vvater	80723	68 8 min, total	0.00030	0.00030	0.0003	0.00030	0.00030	0.00030	0.00030
vvater	80724	10812 min, total	0.00062	0.00041	0.0030	0.00019	0.00028	0.00025	0.00019
Water	80/25	14&16 min, total	0.00030	0.00030	0.0003	0.00030	0.00030	0.00030	0.00030
water	60720	Todazo min, total	0.00030	0.00030	0.0000	0.00000	0.00000	0.00000	0.00000
		Site Water							
Water	81630	Sample 1 Total	0.00030	0.00030	0.0003	0.00030	0.00030	0.00030	0.00030
Water	81631	Sample 2 Total	0.00030	0.00030	0.0003	0.00030	0.00030	0.00030	0.00030
Water	81632	Sample 3 Total	0.00030	0.00030	0.0003	0.00030	0.00030	0.00030	0.00030
		Elutriate							
Water	81636	Sample 1 Dissolved	0.00030	0.00030	0.0003	0.00030	0.00030	0.00030	0.00030
Water	81637	Sample 2 Dissolved	0.00030	0.00030	0.0003	0.00030	0.00030	0.00030	0.00030
Water	81638	Sample 3 Dissolved	0.00030	0.00030	0.0003	0.00030	0.00030	0.00030	0,00030
Water	81633	Sample 1 Total	0.00030	0.00030	0.0003	0,00030	0,00030	0.00030	0.00030
Water	81634	Sample 2 Total	0.00030	0.00030	0.0003	0.00030	0.00030	0.00030	0.00030
Water	81635	Sample 3 Total	0.00030	0.00030	0.0003	0.00030	0.00030	0.00030	0.00030
SAMPLE	SAMPLE	DESCRIPTION	PYRENE	CHRYSE	BAANTHR	BBFLANT	BKFLANT	BAPYRE	1123PYR
TYPE	ID	JECON NON	1.1.0.000.000		Service Constraints			edd a view	
		Detection Limit (mg/kg)	0.0110	0.0110	0.0110	0.0110	0.0110	0.0110	0.0110
		Insitu Sediment							
Sedimen	81702	Sample #1	0.0110	0.0110	0.0110	0.0110	0.0110	0.0110	0.0110
Sedimen	t 81703	Sample #2	0.0332	0.0583	0.0514	0.0617	0.0671	0.0644	0.0621
Sedimen	t 81704	Sample #3	0.0042	0.0110	0.0110	0.0110	0.0110	0.0110	0.0110
PYRENE BKFLAN BOLD - I Values b	- Pyrene T - Benzo(k)f ess than valu elow less tha	CHRYSE - Chrysene BAANTH Fluoranthene BAPYRE - Benzo(a) ies n values are estimated results. Results	R - Benxo(a)An Pyrene 11 are less than th	thracene 23PYR - Inden e reporting lim	BBFLANT - Be o(1,2,3-C,D)Pyr it.	nzo(b)Fluoranth ene	ene		
				Dece	2				
				Page	-				

PAHscoar

SAMPLE	SAMPLE	DESCRIPTION	DBAHANT	B-GHI-PY	2MeNAPH	2FIBP-S	PTERP-S	
		Detection Limit (mg/l)	0.0003	0.00030	0.0003			
		Pluma Monitorina						
Water	80848	Background dissolved	0.0003	0.00030	0.0003	89 8%	71 9%	
Water	80763	Background, total	0.0003	0.00030	0.0003	95.4%	73.8%	
Water	80849	0-10 min, overflow, dissolved	0.0003	0.00030	0.0003	88.8%	68.8%	
Water	80850	10-20 min, overflow, dissolved	0.0003	0.00030	0.0003	91.2%	76.0%	
Water	80851	20-30 min, overflow, dissolved	0.0003	0.00030	0.0003	89.0%	65,8%	
Water	80764	0-10 min, overflow, total	0.0003	0.00030	0.0003	59.1%	76.3%	
Water	80765	10-20 min, overflow, total	0.0003	0.00030	0.0003	36.6%	31.1%	
vvater	80766	20-30 min, overnow, total	0.0003	0.00030	0.0003	92,170	1.1.0.25	
Water	80852	0-10 min, non-overflow, dissolved	0.0003	0.00030	0.0003	94.3%	74.7%	
Water	80853	10-20 min, non-overflow, dissolved	0.0003	0.00030	0.0003	83 1%	65 D%	
Water	80854	20-30 min, non-overflow, dissolved	0.0003	0.00030	0.0003	90.4%	69 1%	
Water	80767	0-10 min, non-overflow, total	0.0003	0.00030	0.0003	36.5%	27.1%	
Water	80768	10-20 min, non-overflow, total	0.0003	0.00030	0.0003	77.5%	69.9%	
Water	80769	20-30 min, non-overflow, total	0.0003	0.00030	0.0003	73.2%	72.0%	
		Hopper Inflow Monitoring						
Water	80810	3& 6 min, dissolved	0.0003	0.00030	0.0003	76.0%	67.4%	
Water	80811	9&12 min, dissolved	0.0003	0.00030	0.0003	77.5%	69 2%	
Water	80812	15&18 min, dissolved	0.0003	0.00030	0.0003	94.5%	76.8%	
Water	80813	21824 min, dissolved	0.0003	0.00030	0.0003	83.0%	63.8%	
Water	80814	27&30 min, dissolved	0.0003	0.00030	0.0003	61 7%	54.8%	
Water	80716	3& 6 min, total	0.0003	0.00030	0.0003	48.0%	60,3%	
Water	80717	9&12 min, total	0.0003	0.00030	0.0003	60.0%	58.4%	
Water	80718	15&18 min, total	0.0003	0.00030	0.0003	12.2%	66,1%	
vvater	80719	21&24 min, total	0.0003	0.00030	0.0003	59 0%	62 9%	
vvater	80720	278.30 min, total	0.0003	0.00030	0.0003	30.076	00.0%	
		active of states and states						
	1000	Hopper Overflow Monitoring					00.70	
vvater	80815	28. 4 min, dissolved	0.0003	0.00030	0.0003	63.0%	00.7%	
Water	00010	10212 min discolved	0.0003	0.00030	0.0003	64 4%	67 7%	
Water	80818	14815 min dissolved	0.0003	0.00030	0.0003	75 4%	81.3%	
Water	80819	18820 min dissolved	0.0003	0.00030	0.0003	48.3%	65.8%	
Water	80722	2& 4 min total	0.0003	0.00030	0.0003	56.5%	69.7%	
Water	80723	68 8 min. total	0.0003	0.00030	0.0003	66.9%	70.5%	
Water	80724	10&12 min, total	0.0003	0.00014	0.0003	60.8%	67.6%	
Water	80725	14&16 min, total	0.0003	0.00030	0.0003	74.2%	65.0%	
Water	80726	18&20 min, total	0.0003	0.00030	0.0003	57.7%	68 1%	
		Site Water	5.5542	1.000	5.5229	0.000		
Water	81630	Sample 1 Total	0.0003	0.00030	0.0003	39.7%	61.9%	
Water	81631	Sample 2 Total	0.0003	0.00030	0.0003	61.3%	62.4%	
vvater	81632	Sample 3 Total	0.0003	0.00030	0.0003	00.076	00.076	
142-1-1	54000	Elutriate	0.0000	0.00000	0.0000		070 00	
Water	81636	Sample 1 Dissolved	0.0003	0.00030	0.0003	20.8%	578.0%	
vvater	8163/	Sample 2 Dissolved	0.0003	0.00030	0.0003	63 304	59 344	
Water	81633	Sample 1 Total	0.0003	0.00030	0.0003	65.9%	64 0%	
Water	81634	Sample 2 Total	0.0003	0.00030	0.0003	37.7%	71 0%	
Water	81635	Sample 3 Total	0.0003	0.00030	0.0003	53.8%	71.2%	
SAMPLE	SAMPLE	DESCRIPTION	DBAHANT	B-GHI-PY	2MeNAPH	2FIBP-S	PTERP-S	
TYPE	ID							
		Detection Limit (ma/ka)	0.0110	0.0110	0.011			
-	04700	Insitu Sediment	0.0000	0.0440	0.014	82 74	40 494	
Sediment	81702	Sample #1	0.0045	0.0514	0.011	76 0%	40.1%	
Sediment	81703	Sample #2 Sample #3	0.0110	0.0110	0.011	68,8%	52.0%	
soomen.		Concerning of the				and the second		
DBAHANT	- Dibenzo/	A.H)Anthracene B-GHI-PY - Ben	zo(G,H,I)Pervier	ne 2MeNA	PH - 2-Methylna	aphthalene		
2FIBP-S -	2-Fluorobip	henyl(Surrogate (43-116 W)) PTI	ERP-S - p-Terph	nenyl-D14(Surro	gate (33-141 W))		
BOLD - les	s than valu	es				0.0		
Values be	ow less that	n values are estimated results. Results	s are less than th	ne reporting limi	t.			
				Page	3			

Pestcoar

SAMPLE	SAMPLE	DESCRIPTION		ALDRIN	A-BHC	B-BHC	G-BHC	D-BHC	PPDDD
		Detection Limit (mg/l)	0.000035	0.000035	0.000035	0.000035	0.000035	0.000070
		Diume Monitorin							
Water	80841	Background, dis	solved	0.000025	0.000025	0.000025	0.000025	0.000025	0.000050
Water	80756	Background, tot	al	0.000025	0.000025	0.000025	0.000025	0.000025	0.000050
Water	80842	0-10 min, over	low, dissolved	0.000025	0.000025	0.000025	0.000025	0.000025	0.000050
Water	80843	10-20 min, over	low, dissolved	0.000025	0.000026	0.000025	0.000025	0.000025	0.000050
Water	80757	0-10 min, over	low total	0.000025	0.000025	0.000025	0.000025	0.000025	0.000050
Water	80758	10-20 min, overf	low, total	0.000025	0.000025	0.000025	0.000025	0.000025	0.000050
Water	80759	20-30 min, overf	low, total	0.000025	0.000025	0.000025	0.000025	0.000025	0.000050
	00046		and the standard	0.000005	0.000007	0.000005			
Water	80845	0-10 min, non-	overflow, dissolved	0.000025	0.000025	0.000025	0.000025	0.000025	0.000050
Water	80847	20-30 min, non-	overflow, dissolved	0.000035	0.000035	0.000035	0.000035	0.000035	0.000070
Water	80760	0-10 min, non-	overflow, total	0.000025	0.000025	0.000025	0.000025	0.000025	0.000050
Water	80761	10-20 min, non-	overflow, total	0.000025	0.000025	0.000025	0.000025	0.000025	0.000050
Water	70762	20-30 min, non-	overflow, total	0.000028	0.000028	0.000028	0.000028	0.000028	0.000055
		Hopper Inflow M	onitoring						
Water	80800	3& 6 min, dis	solved	0.000025	0.000025	0.000025	0.000025	0.000025	0.000050
Water	80801	9&12 min, dist	solved	0.000025	0.000020	0.000025	0.000025	0.000025	0.000050
Water	80802	15&18 min, dist	solved	0.000025	0.000025	0.000046	0.000025	0.000025	0.000050
Water	80803	27830 min, dis	solved	0.000025	0.000071	0.000038	0.000025	0.000025	0.000050
Water	80704	38 6 min. tota	al a	0.000025	0.000031	0.000075	0.000021	0.000039	0.000035
Water	80705	9812 min, tota	1	0.000025	0.000018	0.000025	0.000025	0.000022	0.000095
Water	80706	15&18 min, tota	al	0.000027	0.000046	0.000027	0.000027	0.000023	0.000060
Water	80707	21&24 min, tota	1	0.000027	0.000027	0.000027	0.000027	0.000027	0.000110
Water	80708	27&30 min, tota	91	0.000025	0.000025	0.000025	0.000025	0.000025	0.000016
		Hopper Overflow	Monitoring	6.000.000	Courses.			- Aller	Section .
Water	80805	28, 4 min, dis	solved	0.000025	0.000025	0.000025	0.000025	0.000025	0.000050
Water	80800	10812 min dis	solved	0.000025	0.000023	0.000025	0.000025	0.000025	0.000050
Water	80808	148.16 min. dis:	solved	0.000025	0.000025	0.000025	0.000025	0.000025	0.000050
Water	80809	18&20 min, dis:	solved	0.000025	0.000025	0.000025	0.000025	0.000025	0.000050
Water	80710	2& 4 min, tota	1	0.000025	0.000025	0.000025	0.000025	0.000025	0.000050
Water	80711	6& 8 min, tota	1	0.000025	0.000025	0.000025	0.000025	0.000025	0.000050
Water	80712	10&12 min, tota	il .	0.000027	0.000027	0.000027	0.000027	0.000027	0.000053
Water	80713	14&16 min, tota 18&20 min, tota	8- -	0.000027	0.000027	0.000027	0.000027	0.000027	0.000012
Tutor	50111	Tourse milli inte		121210100		TRANSFER	The second second	400.004	
		Cite Water							
Water	81612	Sample 1 Total		0.000025	0.000025	0.000025	0.000025	0.000025	0.000050
Water	81613	Sample 2 Total		0.000025	0.000025	0.000025	0.000025	0.000025	0.000050
Water	81614	Sample 3 Total		0.000025	0.000025	0.000025	0.000025	0.000025	0.000050
		Elutriate							
Water	81618	Sample 1 Dissol	ved	0.000025	0.000025	0.000025	0.000025	0.000025	0.000050
Water	81619	Sample 2 Dissol	ved	0.000025	0.000025	0.000025	0.000011	0.000025	0.000050
Water	81620	Sample 3 Dissol	ved	0.000025	0.000025	0.000025	0.000025	0.000025	0.000050
Water	81616	Sample 2 Total		0.000025	0.000025	0.000025	0.000025	0.000025	0.000050
Water	81617	Sample 3 Total		0.000025	0.000025	0.000025	0.000025	0.000025	0.000050
SAMPLE	SAMPLE	DESCRIPTION		ALDRIN	A-BHC	B-BHC	G-BHC	D-BHC	PPDDD
TYPE	ID								
		Detection Limit	(mg/kg)	0.00096	0.00096	0 00096	0.0018	0.00096	0.0019
		Incite Continue							
Sediment	81708	Sample #1		0.00096	0.00096	0.0012	0 0021	0.00096	0.0019
Sediment	81709	Sample #2		0.00096	0.00096	0.0013	0.0034	0.00096	0.0019
Sediment	81710	Sample #3		0.00096	0.00096	0.0012	0.0027	0.00096	0.0019
ALDRIN -	Aldrin	A-BHC - A-BHC	B-BHC - B-BHC	G-BHC - G-BHC	D-BHC - D-E	BHC PPDDD	- PPDDD		
BOLD - les	ss than valu	es n values are estima	ted results. Results are	less than the reportion	na limit				
values Del	or leas uid	n ranuca die callilid	neo roomo, ricound die	inter marrine reportin	a min				
					Page 1				

	Pestcoar	

SAMPLE TYPE		DESCRIPTION		PPUDE	PPDUI	HPICL	DIELUKIN	ENDOI	ENC
		Detection Limit (mg/))	0.000070	0.000070	0.0000350	0 000070	0.000035	0.000
		Plume Monitoring	Sec. 1.	2000005	0.0000		distant.	1.12215	365
Water Water	80841 80756	Background, dissolv Background, total	ed	0.000050	0.000050	0.0000250	0.000050	0.000025 0.000025	0.000
Nater	80842	0-10 min overflow.	dissolved	0.000050	0.000050	0.0000250	0.000050	0.000025	0.000
Nater	80843	10-20 min, overflow,	dissolved	0.000050	0.000050	0.0000250	0.000050	0.000025	0.000
Nater	80844	20-30 min, overflow,	dissolved	0.000050	0.000049	0.0000240	0.000049	0.000024	0.000
Nater	80757	0-10 min, overflow,	total	0.000050	0.000050	0.0000250	0.000050	0.000025	0.000
Vater Vater	80758	20-30 min, overflow,	total	0.000050	0.000050	0.0000250	0.000050	0.000025	0.000
Water	80845	0-10 min, non-over	flow, dissolved	0.000050	0.000050	0.0000250	0.000050	0.000025	0.000
Water	80846	10-20 min, non-over	flow, dissolved	0.000050	0.000050	0.0000250	0.000050	0.000025	0.000
Water	80847	20-30 min, non-over	flow, dissolved	0.000070	0.000070	0.0000350	0.000070	0.000035	0.000
Nater	80760	10-10 min, non-over	flow, total	0.000050	0.000050	0.0000250	0.000050	0.000025	0.000
Water	70762	20-30 min, non-over	flow, total	0.000055	0.000055	0.0000280	0.000055	0.000028	0.000
		Hopper Inflow Monit	ating						
Water	80800	38 6 min, dissolve	ed	0.000050	0.000050	0.0000100	0.000050	0.000025	0.000
Nater	80801	9&12 min, dissolve	ed	0.000050	0.000050	0.0000140	0.000050	0.000025	0.000
Nater	80802	15&18 min, dissolve	ed	0.000050	0.000050	0.0000270	0.000050	0.000025	0.000
Nater	80803	21&24 min, dissolvi	ed	0.000050	0.000050	0.0000100	0.000050	0.000025	0.000
Nater	80804	38 6 min, dissolve	ed	0.000050	0.000042	0.0000130	0.000050	0 000010	0.000
Nater	80705	9812 min, total		0 000024	0.000660	0.0000160	0.000050	0.000025	0.000
Water	80706	15&18 min, total		0.000023	0.000053	0.0000190	0.000053	0.000027	0.000
Nater	80707	21&24 min, total		0.000017	0.000053	0.0000070	0.000053	0.000027	0.000
Water	80708	27&30 min, total		0.000029	0.000036	0.0000130	0.000027	0.000025	0.000
		Hopper Overflow Mo	nitoring						
Water	80805	2& 4 min, dissolve	ed	0.000050	0.000050	0.0000250	0.000050	0.000025	0.000
Water	80806	6& 8 min, dissolve	ed	0.000050	0.000050	0.0000250	0.000050	0.000025	0.000
Nater	80807	10&12 min, dissolve	ed .	0.000050	0.000050	0.0000250	0.000050	0.000025	0.000
Nater	80809	18820 min, dissolve	ed .	0.000050	0.000050	0.0000250	0.000050	0.000025	0.000
Nater	80710	2& 4 min, total		0.000010	0.000024	0.0000040	0.000050	0.000025	0.000
Nater	60711	6& 8 min, total		0.000005	0.000050	0.0000250	0.000050	0.000025	0.000
Nater	80712	10&12 min, total		0.000053	0.000053	0.0000270	0.000053	0.000027	0.000
Nater Nater	80713 80714	14&16 min, total 18&20 min, total		0.001100	0.000053	0.0000270	0.000053	0.000027	0.000
Nater	81612	Sample 1 Total		0.000050	0.000050	0.0000250	0.000050	0.000025	0.000
Nater	81613	Sample 2 Total		0.000050	0.000050	0.0000250	0.000050	0.000025	0.000
Water	81614	Sample 3 Total		0.000050	0.000050	0.0000250	0.000050	0.000025	0.000
		Elutnate							
Nater	81618	Sample 1 Dissolved		0.000050	0.000050	0.0000250	0.000050	0.000025	0.000
Nater	81619	Sample 2 Dissolved		0.000050	0.000050	0.0000039	0.000050	0.000025	0.000
Nater	81615	Sample 3 Dissolved		0.000050	0.000050	0.0000250	0.000050	0.000025	0.000
Vater	81616	Sample 2 Total		0.000050	0.000050	0.0000250	0.000050	0.000025	0.000
Vater	81617	Sample 3 Total		0.000050	0.000050	0.0000250	0.000050	0.000025	0.000
SAMPLE	SAMPLE	DESCRIPTION		PPDDE	PPDDT	HPTCL	DIELDRIN	ENDOI	END
		Detection Limit (mg	/kg}	0.0019	0.0019	0.00096	0.0036	0.00096	0.0
		Insitu Sediment					0.000.10		
Sediment	81708	Sample #1 Sample #2		0.0019	0.0019	0.00059	0.00046	0.00096	0.0
Sediment	81710	Sample #3		0.0019	0.0019	0.00049	0.00058	0.00096	0.0
PPDDE - PP	PDDE	PPDDT - PPDDT	HPTCL - Heptachior	DIELDRI	N - Dieldrin	ENDOI - A-Endosulfan	ENDOII	- B-Endosulfan	
/alues belo	w less than	values are estimated	results. Results are less	than the report	ting limit.				
					Page 2				

Pestcoar

TYPE	SAMPLE	DESCRIPTION	ENDOSU	ENDRIN	ENDALD	HPTCLE	METOXYCL	CLORDAN
		Detection Limit (mg/l)	0.000070	0.000070	0,000070	0.000035	0,00035	0.0000
		An other Arman						
A		Plume Monitoring	0.000050				0.00005	
Vater Vater	80841 80756	Background, dissolved Background, total	0.000050	0.000050	0.000050	0.000025	0.00025	0.0000
	CO. CO.							
Vater	80842	0-10 min, overflow, dissolved	0.000050	0.000050	0.000050	0.000025	0.00025	0.0000
Vater	80843	10-20 min, overflow, dissolved	0.000050	0.000050	0.000050	0.000025	0.00025	0.0000
Vater	80844	20-30 min, overflow, dissolved	0.000049	0.000049	0.000049	0.000024	0.00024	0.0000
Water	80757	0-10 min, overflow, total	0.000050	0.000050	0.000050	0.000025	0.00025	0.0000
Nater	80758	10-20 min, overflow, total	0.000050	0.000050	0.000050	0.000025	0.00025	0.0000
Vater	80759	20-30 min, overnow, total	0.000050	0.000050	0.000050	0.000025	0.00025	0.0000.
Water	80845	0-10 min, non-overflow, dissolve	ed 0.000050	0.000050	0.000050	0.000025	0.00025	0.0000
Water	80846	10-20 min, non-averflow, dissolve	ed 0.000050	0.000050	0.000050	0.000025	0.00025	0.0000
Water	80847	20-30 min, non-overflow, dissolve	ed 0.000070	0.000070	0.000070	0.000035	0.00035	0.0000
Water	80760	0-10 min, non-overflow, total	0.000050	0.000050	0.000050	0.000025	0.00025	0.0000
Water	80761	10-20 min, non-overflow, total	0.000050	0.000050	0.000050	0.000025	0.00025	0.0000
Water	70762	20-30 min, non-overflow, total	0.000055	0.000055	0.000055	0.000028	0,00028	0,0000
	10000	Hopper Inflow Monitoring				-		
vvater	80800	3& 6 min, dissolved	0.000050	0.000050	0.000050	0.000025	0.00025	
Water	60601	15819 min, dissolved	0.000050	0.000050	0.000050	0.000025	0.00025	
Nator	80802	218.24 min, dissolved	0.000050	0.000050	0.000050	0.000025	0.00025	
Water	80804	27830 min dissolved	0.000050	0.000050	0.000050	0.000025	0.00025	
Water	80704	38 6 min total	0.000050	0.000018	0.000050	0.000020	0.00025	
Water	80705	9&12 min. total	0.000750	0.000012	0.000560	0.000011	0.00025	
Water	80706	15&18 min, total	0.000260	0 000020	0.000053	0.000023	0.00027	
Water	80707	21&24 min, total	0.000320	0.000053	0.000053	0.000027	0.00027	
Water	80708	27&30 min, total	0.000050	0.000050	0.000050	0.000025	0.00025	
		Hopper Overflow Monitoring	Lauran.	to name	h thank	Charles in	- ALLER	
Water	80805	2& 4 min, dissolved	0.000050	0.000050	0.000050	0.000025	0.00025	
Water	80806	6& 8 min, dissolved	0.000050	0.000050	0.000050	0.000025	0.00025	
Water	80807	10&12 min, dissolved	0.000050	0.000050	0.000050	0.000025	0.00025	
Water	80808	19820 min, dissolved	0.000050	0.000050	0.000050	0.000025	0.00025	
Water	80710	78. 4 min total	0.000050	0.000050	0.000050	0.000009	0.00025	
Water	80711	6& 8 min total	0.000050	0.000050	0.000050	0.000590	0.00025	
Water	80712	10812 min. total	0.000053	0.000053	0.000053	0.000027	0.00027	
Water	80713	14&16 min, total	0.000053	0.000053	0.000053	0.000027	0.00027	
Water	80714	18820 min, total	0.000050	0.000050	0.000050	0.000025	0.00025	
	11112	Site Water				-		
Water	81612	Sample 1 Total	0.000050	0,000050	0.000050	0.000025	0.00025	
Water	81613	Sample 2 Total	0.000050	0.000050	0.000050	0.000025	0.00025	
Water	81614	Sample 3 Total	0.000050	0.000050	0.000050	0.000025	0.00025	
		Charles .						
Water	81618	Elutriate Sample 1 Dissolved	0 000050	0 000050	0.000050	0.000025	0.00025	
Water	81619	Sample 2 Dissolved	0.000050	0.000050	0.000050	0.000025	0.00025	
Water	81620	Sample 3 Dissolved	0.000050	0.000050	0.000050	0.000025	0.00025	
Water	81615	Sample 1 Total	0.000050	0.000050	0.000050	0.000025	0.00025	
Water	81616	Sample 2 Total	0.000050	0.000050	0.000050	0,000025	0.00025	
Water	81617	Sample 3 Total	0.000050	0.000050	0,000050	0.000025	0.00025	
SAMPLE	SAMPLE	DESCRIPTION	ENDOSU	ENDRIN	ENDALD	HPTCLE	METOXYCL	
TIPE	i D		S . ALL	and the second			1	
		Detection Limit (mg/kg)	0.0036	0.0036	0.0036	0.0018	0.018	
		Insitu Sediment	Sec. 1	6.000		2.201	Sec.	
Sediment	81708	Sample #1	0.00083	0.0019	0.0019	0.0014	0.0083	
Sediment	81709	Sample #2	0.00083	0.0019	0,0019	0.0020	0.0083	
Sediment	81710	Sample #3	0.00083	0.0019	0.0019	0.0020	0.0083	
ENDOSU -	Endosulfar	n sulfate ENDRIN - Endrin ne	ENDALD - Endrin Al	idehyde i	HPTCLE - Heptachlor	Epoxide M	METOXYCL - Metho	xychlor
3OLD - les /alues belo	s than valu ow less than	es n values are estimated results. Re	sults are less than the re	porting limit.				
				Page 3				

		Delaware River Water Analysis (Coars	e-Grained Site)				
MPLE	SAMPLE ID	DESCRIPTION	TOXAPHEN	ToLXYL-S	DCLBP	a-CHLORD	g-CHLORD
		Detection Limit (mg/l)	0.000350				
ater ater	80841 80756	Plume Monitoring Background, dissolved Background, total	0.000250	81 60% 90 10%	88,70% 93.00%		
ater ater ater ater ater ater	80842 80843 80844 80757 80758 80759	D-10 min, overflow, dissolved 10-20 min, overflow, dissolved 20-30 min, overflow, dissolved 0-10 min, overflow, total 10-20 min, overflow, total 20-30 min, overflow, total	0.000250 0.000250 0.000240 0.000250 0.000250 0.000250	87,70% 93,90% 92,30% 88,00% 82,40% 89,20%	91 60% 102 00% 97 90% 95 70% 82 60% 92 20%		
later later later later later later	80845 80846 80847 80760 80761 70762	0-10 min, non-overflow, dissolved 10-20 min, non-overflow, dissolved 20-30 min, non-overflow, dissolved 0-10 min, non-overflow, total 10-20 min, non-overflow, total 20-30 min, non-overflow, total	0.000250 0.000250 0.000350 0.000250 0.000250 0.000280	91.60% 74.70% 96.00% 90.60% 53.40% 99.10%	101 00% 86 30% 103 00% 95 30% 72 90% 101 00%		
/ater /ater /ater /ater /ater /ater /ater /ater /ater	80800 80801 80802 80803 80804 80704 80705 80706 80706 80708	Hopper Inflow Monitoring 38, 6 min, dissolved 98,12 min, dissolved 158,18 min, dissolved 218,24 min, dissolved 278,30 min, dissolved 38, 6 min, total 98,12 min, total 158,18 min, total 218,24 min, total 278,30 min, total	0.000025 0.000025 0.000025 0.000025 0.000025 0.000250 0.000250 0.000270 0.000270 0.000270	79.14% 77.94% 65.90% 75.24% 78.33% 62.26% 62.04% 68.15% 56.44% 52.93%	90.86% 88.38% 69.59% 70.11% 81.31% 99.69% 89.41% 69.56% 64.41%	0.000025 0.000025 0.000013 0.000025 0.000018 0.000014 0.000014 0.000025 0.000025	0.000025 0.000025 0.000025 0.000015 0.000016 0.000016 0.000051 0.000052 0.000009 0.000018
/aler /ater /ater /ater /ater /ater /ater /ater /ater	80805 80806 80807 80808 80809 80710 80711 80712 80713 80714	Hopper Overflow Monitoring 2& 4 min, dissolved 108.12 min, dissolved 148.16 min, dissolved 148.20 min, dissolved 2& 4 min, total 6& 8 min, total 108.12 min, total 108.12 min, total 188.20 min, total	0.000025 0.000025 0.000025 0.000025 0.00025 0.000250 0.000250 0.000270 0.000270 0.000270	93,58% 87.07% 90,84% 87.46% 91.71% 69,36% 81,76% 73,21% 73,06% 82,29%	98.19% 97.36% 95.06% 94.46% 68.00% 68.25% 66.74% 68.42%	0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000027 0.000027	0.000025 0.000011 0.000012 0.000025 0.000025 0.000071 0.000071 0.000071 0.000027 0.000027
/ater /ater /ater	81612 81613 81614	Site Water Sample 1 Total Sample 2 Total Sample 3 Total	0.000250 0.000250 0.000250	79.55% 83.18% 80.62%	79,71% 76,81% 73,95%	0.000025 0.000025 0.000025	0.000025 0.000025 0.000025
/ater /ater /ater /ater /ater	81618 81619 81620 81615 81616 81617	Elutriate Sample 1 Dissolved Sample 2 Dissolved Sample 1 Total Sample 2 Total Sample 2 Total Sample 3 Total	0.000250 0.000250 0.000250 0.000250 0.000250 0.000250	82.64% 82.61% 82.47% 81.55% 79.75% 80.50%	76.37% 74.72% 74.18% 75.14% 70.89% 74.91%	0.000025 0.000025 0.000025 0.000025 0.000025 0.000025	0.000025 0.000025 0.000025 0.000025 0.000025 0.000025
AMPLE	SAMPLE	DESCRIPTION	TOXAPHEN	TeLXYL-S	DCLBP	a-CHLORD	g-CHLORD
		Detection Limit (mg/kg)	0.018			0.00096	0.0019
ediment ediment ediment	81708 81709 81710	Insitu Sediment Sample #1 Sample #2 Sample #3	0.0096 0.0096 0.0096	90.16% 85.63% 84.81%	90.52% 90.13% 90.58%	0.00096 0.00096 0.00096	0.0011 0.0013 0.0022
OXAPHE CHLORI OLD - les	N - Toxaphe D - a-CHLOf	ene TcLXYL-S - 2,4,5,6-Tetrachio RDANE g-CHLORD - g-CHLORD es	ro-m-xylene(Surroga ANE	ate(60-150 VVS))	DCLBP - Dec	achlorobiphenyl(S	Surrogate (60-150 W

P	CBs	coar	

Delaware River Wate	er Analysis (Coarse	e-Grained Site)	

SAMPLE	SAMPLE	DESCRIPTION	PCB 22	PCB 33	PCB 37	PCB 42	PCB 47	PCB 64	PCB 74
		Detection Limit (ma/l)	0.0000011	0.000011	0.000011	0.0000011	0.0000011	0.0000011	0.0000011
		Detection Ennic (ingry	0.00000011	0.0000011	0,0000011	0.0000011	0.0000011	0.0000011	0.0000011
		Plume Monitoring	1.11111	0.10000.00	0.00000000				
Water	80834	Background, dissolved	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011
Water	80749	Background, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Nater	80835	0-10 min, overflow, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Vater	80836	10-20 min, overflow, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Nater	80837	20-30 min, overflow, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Nater	80750	0-10 min, overflow, total	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011
Water	80751	10-20 min, overflow, total	0.0000004	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Nater	80752	20-30 min, overflow, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	80838	0-10 min non-overflow dissolve	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Nater	80839	10-20 min, non-overflow, dissolve	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.000001
Water	80840	20-30 min, non-overflow, dissolve	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011
Water	80753	0-10 min, non-overflow, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Nater	80754	10-20 min, non-overflow, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	80755	20-30 min, non-overflow, total	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011
		and and the family							
Nater	80790	Hopper Inflow Monitoring 38 6 min dissolved	0.0000010	0.0000010	0.0000010	0.0000022	0.0000010	0.0000010	0.0000010
Vater	80791	9&12 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000020	0.0000010	0.0000010	0.000001
Vater	80792	15&18 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000014	0.0000005	0.0000010	0.0000010
Vater	80793	21&24 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000012	0.0000015	0.0000010	0.000001
Water	80794	27830 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000009	0.0000008	0.0000010	0.000001
Vater	80692	3& 6 min, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
Water	80693	9&12 min, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
Nater	80694	15&18 min, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
Vater	80690	21824 min, total	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000027	0.000001
vale	80080	27 abo min, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000020	0.0000010
		Hopper Overflow Monitoring							
Valer	80795	2& 4 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000017	0.0000010	0.0000010	0.0000010
Water	80796	6& 8 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000019	0.0000010	0.0000010	0.0000010
Vater	80797	10&12 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000011	0.0000010	0.0000010	0.000001
Vater	80798	14&16 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000015	0.0000010	0.0000010	0.000001
Nater	80799	18820 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
Water	80698	28 4 min, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
Nater	80699	6& 8 min, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
Nater	80700	14816 min total	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.000001
Vater	80702	18&20 min, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Mater	04504	Site Water	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000044
Valer	81595	Sample 1 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Vater	81596	Sample 3 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
		Elutriate	0.222224				1 2 2 2 2 2 2 2 2 2		
Vater	81600	Sample 1 Dissolved	0.0000010	0.0000010	0,0000010	0.0000010	0.0000010	0.0000010	0.000001
Vater	81601	Sample 2 Dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0,0000010	0.000001
Vater	81602	Sample 3 Dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
Vater	81598	Sample 2 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
Vater	81599	Sample 3 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
AMPLE	SAMPLE	DESCRIPTION	PCB 22	PCB 33	PCB 37	PCB 42	PCB 47	PCB 64	PCB 7
		Detection Limit (ma/ka)	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033	0.0003
		Link College							
ediment	81714	Sample #1	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033	0.0003
and the second second	81715	Sample #2	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033	0.0003
Sediment	a (100 C		101 20 2014 ·	The second se	

Values below less than values are estimated results. Results are less than the reporting limit.

DOD	Section and a	
PGE	scoar	

Delaware	River	Water	Analy	sis	Coarse-Grained Site)
Delaware	NIVE	vvaler	minary	313 1	Guarse-Granieu Giler

				PCBs	ria				
		Delaware River Water Analysis (Coar	se-Grained Site)						
AMPLE	SAMPLE	DESCRIPTION	PCB 80	PCB 81	PCB 84	PCB 91	PCB 92	PCB 95	PCB
in the	10	Detection Limit (mg/l)	0.0000011	0.0000011	0.00000110	0.0000011	0.0000011	0.00000110	0.000001
later	80834	Plume Monitoring Background, dissolved	0.0000011	0.0000011	0.00000110	0.0000011	0.0000011	0 00000080	0.000001
/ater	80749	Background, total	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010	0.00000060	0.000001
ater	80835	0-10 min, overflow, dissolved	0.0000010	0.0000010	0.00000060	0.0000010	0.0000010	0.00000090	0.000001
ater	80837	20-30 min, overflow, dissolved	0.0000010	0.0000010	0.00000050	0.0000010	0.0000010	0.00000090	0.000000
ater	80750	0-10 min, overflow, total	0.0000011	0.0000011	0.00000110	0.0000011	0.0000011	0.00000110	0.000001
ater ater	80751 80752	10-20 min, overflow, total 20-30 min, overflow, total	0.0000010	0.0000010	0.00000040	0.0000010	0.0000010	0.00000090	0.000001
ater	80838	0-10 min non-overflow dissolve	0.0000010	0.0000010	0 00000080	0 0000010	0.0000010	0 00000080	0.00000
ater	80839	10-20 min, non-overflow, dissolve	0.0000011	0.0000011	0.00000050	0.0000011	0.0000011	0 00000090	0.000000
ater	80840	20-30 min, non-overflow, dissolve	0.0000011	0.0000011	0.00000050	0.0000011	0.0000011	0.00000110	0.00000
ater	80753	0-10 min, non-overflow, total	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010	0.00000050	0.00000
ater	80755	20-30 min, non-overflow, total	0.0000011	0.0000011	0.00000110	0.0000011	0.0000011	0.00000110	0.000000
		Honnor Inflow Monitoring							
ater	80790	3& 6 min, dissolved	0.0000010	0.0000010	0.00000140	0.0000010	0.0000010	0.00000120	0.00000
ater	80791	9&12 min, dissolved.	0.0000010	0.0000010	0.00000110	0.0000010	0.0000010	0.00000110	0 00000
ater	80792	15&18 min, dissolved	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010	0.00000100	0.00000
iter	80794	27&30 min, dissolved	0.0000010	0.0000010	0.00000170	0.0000010	0.0000010	0.00000160	0.00000
ater	80692	3& 6 min, total	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010	0.00000120	0.00000
ater	80693	9&12 min, total	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010	0.00000140	0.00000
ater	80695	21&24 min, total	0.0000011	0.0000011	0.00000330	0.0000011	0.0000011	0.00000290	0.00000
ater	80696	27&30 min, total	0.0000010	0.0000010	0.00000240	0.0000010	0.0000010	0.00000200	0.00000
		Hopper Overflow Monitoring							
ater	80795	2& 4 min, dissolved	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010	0.00000100	0.00000
ater	80795	10&12 min, dissolved	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010	0.00000050	0.00000
ater	80798	14&16 min, dissolved	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010	0.00000060	0.00000
ater	80799	18&20 min, dissolved	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010	0.00000060	0.00000
ater	80698	2& 4 min, total 6& 8 min, total	0.0000010	0.0000010	0.00000120	0.0000010	0.0000010	0.00000130	0.00000
ater	80700	10&12 min, total	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010	0.00000140	0.00000
ater	80701	14&16 min, total	0.0000011	0.0000011	0.00000110	0.0000011	0.0000011	0.00000110	0.00000
ater	80702	18&20 min, total	0.0000010	0.0000010	0.0000080	0.0000010	0.0000010	0,0000180	0.00000
	04504	Site Water	0.0000010	0.0000040	0.00000400	0.0000010	0.0000010	0.00000100	0 00000
ater	81594	Sample 2 Total	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010	0.00000090	0.00000
ater	81596	Sample 3 Total	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010	0.00000100	0.00000
		Elutriate							
ater	81600	Sample 1 Dissolved	0.0000010	0.0000010	0.00000043	0.0000010	0.0000010	0.00000086	0.00000
ater	81602	Sample 2 Dissolved	0.0000010	0.0000010	0.00000034	0.0000010	0.0000010	0 00000069	0.00000
ater	81597	Sample 1 Total	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010	0.00000048	0.00000
ater	81598 81599	Sample 2 Total Sample 3 Total	0.0000010	0.0000010	0.00000100	0.0000010 0.0000010	0.0000010	0.00000150	0.00000
MPLE	SAMPLE	DESCRIPTION	PCB 80	PCB 81	PCB 84	PCB 91	PCB 92	PCB 95	PCB
	D.	Detection Limit (malka)	0 00033	0.00033	0.00033	0 00033	0 00033	0.00033	0.00
		Ineiti Sediment	0.00003	0,00000	0,00000	0,00000	9.00030	0.000000	0.00
diment	81714	Sample #1	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033	0.00
diment	81715	Sample #2	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033	0.00

Values below less than values are estimated results. Results are less than the reporting limit.

E	CBe		
1	CBS	coar	

Delaware niver water Analysis (Coalse-Oralited Site	Delaware	River Water	Analysis	(Coarse-Grained	Site)
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SAMPLE	SAMPLE	DESCRIPTION	PCB 110	PCB 119	PCB 120	PCB 123	PCB 126	PCB 127	PCB 132
		Detection Limit (mg/l)	0.00000110	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011
		Di man Manifesia a							
Water	60934	Piume Monitoring Backaround dissolved	0.0000100	0.0000011	0.0000011	0 0000011	0.0000011	0.0000011	0.0000011
Water	80749	Background, total	0.00000050	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	90935	0.10 min overflow dissolved	0.0000000	0 0000010	0 0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	80836	10-20 min, overflow, dissolved	0.00000110	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	80837	20-30 min overflow dissolved	0.0000080	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	80750	0-10 min overflow total	0.00000050	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011
Water	80751	10-20 min, overflow, total	0.00000070	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	80752	20-30 min, overflow, total	0.00000050	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	80838	0-10 min, non-overflow, dissolve	0.00000110	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	80839	10-20 min, non-overflow, dissolve	0.00000070	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011
Water	80840	20-30 min, non-overflow, dissolve	0.00000110	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011
Water	80753	0-10 min, non-overflow, total	0.00000050	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	80754	10-20 min, non-overflow, total	0.00000060	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
VVDIC/	60755	20-00 min, noth-overnow, total	0.00000000	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000005
		Hopper Inflow Monitoring							
Water	80790	3& 6 min, dissolved	0.00000210	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	80791	9&12 min, dissolved	0.00000160	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	80792	15&18 min, dissolved	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Waler	80793	21&24 min, dissolved	0.00000160	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	80794	27&30 min, dissolved	0.00000160	0.0000010	0.0000007	0.0000010	0.0000010	0.0000010	0.0000010
Water	80692	3& 6 min, total	0.00000160	0.0000010	0.0000026	0.0000010	0.0000010	0.0000010	0.0000010
Water	80693	9&12 min, total	0.00000200	0.0000010	0.0000019	0.0000010	0.0000010	0.0000010	0.0000010
Water	80694	15&18 min, total	0 00000260	0.0000010	0.0000054	0.0000010	0.0000010	0.0000010	0.0000010
Nater	80595	21&24 min, total	0.00000260	0.0000011	0.0000061	0.0000011	0.0000011	0.0000011	0.0000011
Water	80696	27&30 min, total	0.00000230	0.0000010	0.0000071	0.0000010	0.0000010	0.0000010	0.0000010
		Honner Overflow Monitoring							
Water	80795	28. 4 min dissolved	0.0000070	0 0000010	0.0000010	0 0000010	0 0000010	0.0000010	0 0000010
Nator	80796	6& 8 min dissolved	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Nater	80797	10&12 min_dissolved	0.00000050	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Nater	80798	14816 min_dissolved	0.00000060	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Nater	80799	18820 min dissolved	0.00000050	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	80698	28. 4 min. total	0.00000150	0.0000010	0.0000008	0.0000010	0.0000010	0.0000010	0.0000010
Nater	80699	6& 8 min total	0.00000120	0.0000010	0.0000005	0.0000010	0.0000010	0.0000010	0.0000010
Water	80700	10&12 min, total	0.00000150	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	80701	14&16 min. total	0.00000110	0.0000011	0.0000006	0.0000011	0.0000011	0.0000011	0.0000011
Water	80702	18&20 min, total	0.00000160	0.0000010	0.0000005	0.0000010	0.0000010	0.0000010	0.0000010
		anium)							
Alatan	04504	Site Water	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	01394	Sample 7 Total	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	81596	Sample 3 Total	0.00000077	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
	04000	Elutriate	0.0000004	0.000010	0.0000010	0.000010	0.0000010	0.0000010	0.0000040
Valer	01600	Sample 7 Dissolved	0.00000081	0.000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
vater	81601	Sample 2 Dissolved	0.00000063	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Nater	81602	Sample 3 Dissolved	0.00000064	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Nater	81508	Sample 7 Total	0.0000000110	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Vater	81599	Sample 3 Total	0.00000059	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
						a saisted	and the second		6.00.000
SAMPLE TYPE	SAMPLE	DESCRIPTION	PCB 110	PC8 119	PGB 120	PCB 123	PCB 126	PCB 127	PCB 132
		Detection Limit (mg/kg)	0.00033	0.00033	0.00033	0.00033	0,00033	0.00033	0.00033
		Insitu Sediment							
	81714	Sample #1	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033
Sedimen		Sample #7	0.00033	0.00033	0.00033	0.00033	0.00033	0,00033	0.00033
Sedimen Sedimen	81715	Sample #2							

				PCBs	coar				
		Delaware River Water Analysis (Coar	rse-Grained Site)						
SAMPLE TYPE	SAMPLE	DESCRIPTION	PCB 135	PCB 146	PCB 149	PCB 157	PCB 158	PCB 166	PCB 168
		Detection Limit (mg/l)	0.0000011	0.00000110	0.00000110	0.0000011	0.0000011	0.0000011	0 00000110
Water Water	80834 80749	Plume Monitoring Background, dissolved Background, total	0.0000011 0.0000010	0.00000110	0.00000110	0.0000011 0.0000010	0.0000011	0.0000011	0.00000110
Water Water Water Water Water Water	80835 80836 80837 80750 80751 80752	0-10 min, overflow, dissolved 10-20 min, overflow, dissolved 20-30 min, overflow, dissolved 0-10 min, overflow, total 10-20 min, overflow, total 20-30 min, overflow, total	0.0000010 0.0000010 0.0000010 0.0000011 0.0000010 0.0000010	0.00000100 0.0000050 0.00000100 0.00000110 0.00000100 0.00000100	0.00000040 0.0000040 0.0000040 0.00000110 0.00000100 0.00000100	0.0000010 0.0000010 0.0000010 0.0000011 0.0000010 0.0000010	0.0000010 0.0000010 0.0000010 0.0000011 0.0000010 0.0000010	0.0000010 0.0000010 0.0000010 0.0000011 0.0000010 0.0000010	0.00000100 0.00000100 0.00000100 0.00000100 0.00000100 0.00000100
Water Water Water Water Water Water	80638 80839 80840 80753 80754 80755	0-10 min, non-overflow, dissolve 10-20 min, non-overflow, dissolve 20-30 min, non-overflow, dissolve 0-10 min, non-overflow, total 10-20 min, non-overflow, total 20-30 min, non-overflow, total	0.0000010 0.0000011 0.0000011 0.0000010 0.0000010 0.0000011	0.00000100 0.00000110 0.00000110 0.00000100 0.00000100 0.00000110	0.00000100 0.00000110 0.00000110 0.00000100 0.00000100 0.00000100	0.0000010 0.0000011 0.0000011 0.0000010 0.0000010 0.0000011	0.0000010 0.0000011 0.0000011 0.0000010 0.0000010 0.0000011	0.0000010 0.0000011 0.0000011 0.0000010 0.0000010 0.0000011	0.00000100 0.00000110 0.00000110 0.00000100 0.00000100 0.00000110
Water Water Water Water Water Water Water Water Water Water	80790 80791 80792 80793 80794 80692 80693 80694 80695 80696	Hopper Inflow Monitoring 3& 6 min, dissolved 9&12 min, dissolved 15&18 min, dissolved 21&24 min, dissolved 27&30 min, dissolved 3& 6 min, total 9&12 min, total 15&18 min, total 21&24 min, total 27&30 min, total	0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000011 0.0000011	0.00000100 0.0000100 0.0000100 0.00000100 0.00000100 0.00000100 0.00000100 0.00000100 0.00000100 0.00000100	0.00000040 0.0000040 0.0000040 0.00000130 0.0000130 0.0000130 0.0000130 0.0000130 0.0000290 0.0000290 0.0000300	0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000011	0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000011 0.0000011	0.0000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000011 0.0000010	0.00000100 0.00000100 0.00000100 0.00000100 0.0000075 0.0000075 0.00000160 0.00000140 0.00000100
Water Water Water Water Water Water Water Water Water Water	80795 80796 80797 80798 80799 80698 80699 80699 80700 80701 80701	Hopper Overflow Monitoring 28.4 min, dissolved 68.8 min, dissolved 10812 min, dissolved 14816 min, dissolved 18820 min, dissolved 28.4 min, total 68.8 min, total 10812 min, total 14816 min, total 18820 min, total	0.0000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000011 0.0000010	0.00000100 0.0000100 0.0000100 0.0000100 0.00000100 0.00000100 0.00000100 0.00000100 0.00000100	0.00000100 0.00000100 0.00000100 0.00000100 0.00000160 0.00000180 0.00000180 0.00000240 0.00000240 0.00000240	0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.0000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.0000010 0.0000010 0.0000010	0.0000010 0.000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000011 0.0000011	0.00000100 0.00000100 0.00000100 0.00000100 0.00000100 0.000000100 0.00000100 0.00000100
Water Water Water	81594 81595 81596	Site Water Sample 1 Total Sample 2 Total Sample 3 Total	0.0000010 0.0000010 0.0000010	0.00000100 0.00000100 0.00000100	0.00000100 0.00000050 0.00000100	0.0000010 0.0000010 0.0000010	0.0000010 0.0000010 0.0000010	0.0000010 0.0000010 0.0000010	0.00000100 0.00000100 0.00000100
Water Water Water Water Water Water	81600 81601 81602 81597 81598 81599	Elutriate Sample 1 Dissolved Sample 2 Dissolved Sample 1 Total Sample 2 Total Sample 2 Total Sample 3 Total	0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.00000100 0.00000100 0.00000100 0.00000100 0.00000100 0.00000100	0.00000038 0.00000037 0.00000100 0.00000100 0.00000066 0.00000100	0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.00000100 0.00000100 0.00000100 0.00000100 0.00000100 0.00000100
SAMPLE	SAMPLE	DESCRIPTION	PCB 135	PCB 146	PCB 149	PCB 157	PCB 158	PCB 166	PCB 168
		Detection Limit (mg/kg)	0.00033	0.00033	0.00033	0 00033	0 00033	0.00033	0.00033
Sediment Sediment Sediment	81714 81715 81716	Insitu Sediment Sample #1 Sample #2 Sample #3	0,00033 0,00033 0.00033	0.00033 0.00033 0.00033	0.00033 0.00033 0.00033	0.00033 0.00033 0.00033	0.00033 0.00033 0.00033	0.00033 0.00033 0.00033	0.00033 0.00033 0.00033
BOLD - le Values be	ess than values that low less that	ues an values are estimated results. Resu	Its are less than th	e reporting limit					
				Dage	4				
				Fag					

PCBscoar

Delaware River Water Analysis (Coarse-Grained Site)

TYPE	ID	DESCRIPTION	100 100	POD I/4	FGB III	100 110	100 110	1000	FCB
		Detection Limit (mg/l)	0.0000011	0.0000011	0.0000011	0.0000011	D.0000011	0.0000011	0.0000011
		Plume Monitoring							
Vater	80834	Background, dissolved	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011
Vater	80749	Background, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
later	80835	0-10 min overflow dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
later	80836	10-20 min overflow dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
ater	80837	20-30 min, overflow, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Vater	80750	0-10 min, overflow, total	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011
Vater	80751	10-20 min, overflow, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Vater	80752	20-30 min, overflow, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Vater	80838	0-10 min, non-overflow, dissolve	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Vater	80839	10-20 min, non-overflow, dissolve	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011
Vater	80840	20-30 min, non-overflow, dissolve	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011
Vater	80753	0-10 min, non-overflow, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Vater	80754	10-20 min, non-overflow, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Vater	80755	20-30 min, non-overflow, total	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011
		Honoor Inflow Monitorion							
Nater	80790	38.6 min dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000046
Vater	80791	9812 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Vater	80792	15&18 min_dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
Vater	80793	21824 min. dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
ater	80794	27830 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
Vater	80692	38 6 min total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
Vater	80693	9812 min total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
Vater	80694	158.18 min, total	0.0000010	0 0000084	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
Vater	80695	21&24 min. total	0.0000011	0.0000058	0.0000011	0.0000011	0.0000011	0.0000011	0.000001
Vater	80696	27&30 min, total	0.0000010	0.0000042	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
		(Vicinia de Calendaria)							
Value	00705	Hopper Overnow Monitoring	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
Valer	00795	28 4 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
Valer	00707	10812 min dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
Valer	80709	14816 min dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
Vater	80700	188.20 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
Vater	80698	78 4 min total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
Vater	80699	68 8 min total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
Vater	80700	10812 min total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
Vater	80701	14816 min total	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.000001
Vater	80702	18&20 min, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
Vater	81594	Site Water Samole 1 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000000
Vater	81595	Sample 2 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000000
Vater	81596	Sample 3 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0 000000
		-							
later	91600	Elutriate	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
vater	81600	Sample 7 Dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
ater	01001	Sample 2 Dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
ator	81507	Sample 1 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000000
later	01007	Sample 7 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0 000000
vater Vater	81599	Sample 3 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
					000 (77	000 470	000 470	000.0	DCB
AMPLE	SAMPLE	DESCRIPTION	PCB 169	PCB 1/4	PCB 177	PCB 1/8	PCB1/9	PGB 8	PCB
		Detection Limit (mg/kg)	0,00033	0.00033	0.00033	0.00033	0.00033	0.00033	0.000
		Insitu Sediment							
ediment	81714	Sample #1	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033	0.000
ediment	81715	Sample #2	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033	0.000
1.	81716	Sample #3	0.00033	0.00033	0,00033	0.00033	0.00033	0.00033	0.000

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Delaware	River Water	Analysis	Coarse-Grained S	Site)
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		Delaware River Water Analysis (Coar	se-Grained Site)						
SAMPLE TYPE	SAMPLE	DESCRIPTION	PCB 28	PCB 31	PCB 40	PCB 44	PCB 49	PCB 52	PCB 6
		Detection Limit (mg/l)	0.0000011	0.0000011	0.0000011	0.00000110	0.0000011	0.00000110	0.000001
		Plume Monitoring							
Water Water	80834 80749	Background, dissolved Background, total	0.0000011 0.0000010	0.0000011 0.0000010	0.0000011 0.0000010	0.00000140	0.0000011 0.0000010	0.00000090	0.000001
Water	80835	0-10 min, overflow, dissolved	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.00000090	0.000001
Water	80836	10-20 min, overflow, dissolved	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.00000110	0.000001
Water	80837	20-30 min, overflow, dissolved	0.0000010	0.0000010	0.0000010	0.00000080	0.0000010	0.00000100	0.000001
Water	80751	10-20 min, overflow, total	0.0000010	0.0000051	0.0000010	0.00000100	0.0000010	0.00000090	0.000001
Water	80752	20-30 min, overflow, total	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000050	0.000001
Water	80838	0-10 min, non-overflow, dissolve	0.0000010	0.0000010	0.0000010	0.00000130	0.0000010	0.0000090	0.000001
Water	80839	10-20 min, non-overflow, dissolve	0.0000011	0.0000011	0.0000011	0.00000110	0.0000011	0,00000090	0.000001
Water	80753	0-10 min, non-overflow, total	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0 00000060	0.000001
Water	80754	10-20 min, non-overflow, total	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.00000080	0.000001
Water	80755	20-30 min, non-overflow, total	0.0000011	0.0000011	0.0000010	0.00000110	0.0000011	0.00000110	0.000001
	mant	Hopper Inflow Monitoring			. manue .	20020552		datatasara	20000
Water	80790	3& 6 min, dissolved	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.00000050	0.000001
Water	80792	15&18 min, dissolved	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.00000440	0.000001
Water	80793	21&24 min, dissolved	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.00000000	0.000001
Water	80794	27830 min, dissolved	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.00000100	0.000001
Nater	80693	9&12 min, total	0.0000010	0.0000010	0.0000010	0.00000110	0.0000041	0.00000100	0.000001
Nater	80694	15&18 min, total	0.0000010	0.0000010	0.0000010	0.00000170	0.0000010	0.00000200	0.000001
Nater	80695	21&24 min, total	0.0000011	0.0000011	0.0000011	0.00000210	0.0000011	0.00000280	0.000001
vvater	00090	27630 min, total	0.000010	0.0000010	0.000010	0.00000470	0.0000010	0.00000350	0.000001
	00705	Hopper Overflow Monitoring	0.0000040	0.000004.0	0.0000040	0.00000400	0.000004.0	0.00000100	0 000001
Water	80795	5& 8 min, dissolved	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.00000060	0.000001
Water	80797	10&12 min, dissolved	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0 00000050	0.000001
Water	80798	14&16 min, dissolved	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.00000060	0.000001
Water	80799	18&20 min, dissolved	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.00000060	0.000001
Water	80699	68 8 min, total	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.00000094	0.000001
Water	80700	10&12 min, total	0.0000010	0.0000010	0.0000010	0.0000063	0.0000010	0.00000100	0.000001
Nater Water	80701 80702	14&16 min, total 18&20 min, total	0.0000011	0.0000011	0.0000011	0.00000110	0.0000011	0.00000089	0.000001
		Same							
Water	81594	Sample 1 Total	0.0000010	0 0000022	0.0000010	0.00000100	0.0000010	0.0000082	0.000001
Water	81595	Sample 2 Total	0.0000010	0.0000033	0.0000010	0.00000064	0.0000010	0.00000096	0.000001
Valei	01390	Sample S Total	0.0000010	0.000036	0.000010	0.0000073	0.000010	0.00000078	0.000001
	24020	Elutrate	0.0000010	0000030	0.0000010	0.00000100	0.0000010	0.00000100	0 000001
Nater	81600	Sample 2 Dissolved	0.0000010	0.0000022	0.0000010	0.00000100	0.0000010	0.00000084	0.00000
Nater	81602	Sample 3 Dissolved	0.0000010	0.0000032	0.0000010	0.00000100	0.0000010	0.00000095	0.00000
Valer	81597	Sample 1 Total	0.0000010	0.0000021	0.0000010	0.00000100	0.0000010	0.00000054	0.00000
Vater Vater	81598	Sample 3 Total	0.0000010	0.0000025	0.0000010	0.00000100	0.0000010	0.00000058	0.000001
AMPLE	SAMPLE	DESCRIPTION	PCB 28	PCB 31	PCB 40	PCB 44	PCB 49	PCB 52	PCB 6
0.5	-	Detection Limit (mg/kg)	0.00033	0.00033	0,00033	0.00033	0.00033	0.00033	0.0003
		Insitu Sediment							
Sediment	81714	Sample #1	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033	0.0003
Sediment	81/15	Sample #2 Sample #3	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033	0.0003
		a contraction of the second	414444		24 C.	227 A. T. P.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		

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Delaware P	River Water	Analysis	(Coarse-Grained Site)	di i

SAMPLE TYPE	SAMPLE	DESCRIPTION	PCB 70	PCB 77	PCB 82	PCB 86	PCB 87	PCB 97	PCB 101
		Detection Limit (mg/l)	0 00000110	0.0000011	0 0000011	0.00000110	0.00000110	0.00000110	0.00000110
		Pluma Manifating							
Water Water	80834 80749	Background, dissolved Background, total	0.00000110 0.00000100	0.0000011 0.0000010	0.0000011 0.0000010	0 00000090 0 00000080	0.00000080 0.00000050	0.00000090	0.00000090 0.00000050
10/star	80835	0.10 min overflow dissolved	0.00000040	0.0000010	0 0000010	0.0000070	0.00000080	0.0000070	0.0000000
Water	80836	10-20 min, overflow, dissolved	0 00000040	0.0000010	0.0000010	0.00000070	0 00000050	0.00000070	0.00000110
Water	80837	20-30 min, overflow, dissolved	0.00000040	0.0000010	0.0000010	0.00000060	0.00000040	0,00000060	0.00000090
Water	80750	0-10 min, overflow, total	0.00000050	0.0000011	0.0000011	0.00000110	0.00000040	0.00000110	0.00000060
Water	80751	10-20 min, overflow, total	0.00000050	0.0000010	0.0000010	0.00000040	0 00000080	0.00000040	0.00000060
vvalet	60752	20-30 Min, overnow, total	0.0000040	0.000010	0.0000010	0.00000000	0.00000100	0,00000030	0.00000000
Water	80838	0-10 min, non-averflow, dissolve	0 0000050	0.0000010	0.0000010	0.00000080	0.0000070	0 00000080	0.00000090
Water	80839	10-20 min, non-overflow, dissolve	0.00000050	0.0000011	0.0000011	0.00000060	0,00000070	0.00000060	0.00000090
Water	80753	0-10 min, non-overflow, dissolve	0.00000000	0.0000010	0.0000010	0 00000100	0.00000080	0.00000100	0.00000090
Water	80754	10-20 min non-overflow total	0.00000100	0.0000010	0.0000010	0.00000040	0.00000050	0.00000040	0.00000070
Water	80755	20-30 min, non-overflow, total	0.00000050	0.0000010	0.0000011	0.00000100	0.00000070	0.00000110	0.00000110
1000		Hopper Inflow Monitoring	0.000000.45						
Water	80790	3& 6 min, dissolved	0.00000040	0.0000010	0.0000010	0.00000080	0.00000110	0.00000080	0.00000140
Water	80792	15&18 min dissolved	0.00000040	0.0000010	0.0000010	0.00000000	0.00000130	0.000000000	0.00000120
Water	80793	21&24 min, dissolved	0.00000060	0.0000010	0.0000010	0.00000130	0 00000150	0.00000130	0.00000030
Water	80794	27&30 min, dissolved	0.00000090	0.0000010	0.0000010	0.00000180	0.00000110	0.00000180	0.00000100
Water	80692	3& 6 min, total	0.00000280	0.0000010	0.0000010	0.00000190	0.00000100	0.00000190	0.00000430
Water	80693	9&12 min, total	0.00000180	0.0000010	0.0000010	0.00000088	0.00000100	88000000 0	0,00000300
Water	80694	15818 min, total	0.00000250	0.0000010	0.0000010	0.00000290	0.00000100	0.00000290	0.00000390
Water	80696	27&30 min, total	0.00000140	0.0000010	0.0000010	0.00000220	0.00000100	0.00000220	0.00000380
		Hopper Overflow Monitoring							
Water	80795	2& 4 min, dissolved	0.00000100	0.0000010	0.0000010	0.00000100	0.00000100	0.00000100	0.00000080
Water	80796	68 8 min, dissolved	0.00000100	0.0000010	0.0000010	0.00000100	0.00000100	0.00000100	0.00000100
Water	80797	14816 min, dissolved	0.00000030	0.0000010	0.0000010	0.00000100	0.00000050	0.00000100	0.00000100
Water	80798	18820 min, dissolved	0.00000040	0.0000010	0.0000010	0.00000040	0.00000100	0.00000040	0.00000100
Water	80698	2& 4 min, total	0.00000100	0.0000010	0.0000010	0.00000061	0.00000100	0.00000061	0.00000240
Water	80699	6& 8 min, total	0.00000073	0.0000010	0.0000010	0.00000044	0.00000100	0.00000044	0.00000140
Water	80700	10&12 min, total	0.00000100	0.0000010	0.0000010	0.00000051	0.00000063	0.00000051	0.00000200
Water	80701	14&16 min, total	0.00000110	0.0000011	0.0000011	0.00000052	0.00000110	0.00000052	0.00000210
vvater	80702	186/20 min, total	0.00000100	0.0000010	0.0000010	0.00000003	0.0000100	0.00000053	0,00000240
		Site Water							
Water	81594	Sample 1 Total	0 00000058	0.0000010	0.0000010	0.00000100	0.00000100	0.00000100	0.00000079
Water	81595	Sample 2 Total	0.0000078	0.0000010	0.0000010	0.00000100	0.00000100	0.00000100	0.00000130
Water	81596	Sample 3 Total	0.0000078	0.0000010	0.0000010	0.00000100	0.00000100	0.00000100	0.00000110
		Elidente							
Water	81600	Sample 1 Dissolved	0.00000100	0.0000010	0.0000010	0.00000100	0.00000038	0.00000100	0.00000100
Water	81601	Sample 2 Dissolved	0.00000100	0.0000010	0.0000010	0.00000100	0.00000062	0.00000100	0.00000071
Water	81602	Sample 3 Dissolved	0 00000049	0.0000010	0.0000010	0.00000100	0.00000100	0.00000100	0.00000077
Water	81597	Sample 1 Total	0.00000053	0.0000010	0.0000010	0.00000100	0.00000100	0.00000100	0.00000054
Water	81598 81599	Sample 2 Total Sample 3 Total	0.00000120	0.0000010	0.0000010	0.00000057	0.0000068	0.00000057	0.00000160
SAMPLE	SAMPLE	DESCRIPTION	PCB 70	PCB 77	PCB 82	PCB 86	PCB 87	PCB 97	PCB 101
TYPE	ID.								
		Detection Limit (mg/kg)	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033
4.7.7.7	- Second	Insitu Sediment							
Sediment	81714	Sample #1	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033
Sediment	81715	Sample #2 Sample #3	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033
		An and a star		(md2227)	AN LEED				
BOLD - le	ss than valu	ues							
Values be	low less the	an values are estimated results. Resu	Its are less than the	reporting limit.					
				Page	7				

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Delaware River Water Analysis (Coarse-Grained Site)

SAMPLE	SAMPLE	DESCRIPTION	PCB 105	PCB 114	PCB 118	PCB 121	PCB 128	PCB 136	PCB 13
		Detection Limit (mg/l)	0.00000110	0,0000011	0.00000110	0.0000011	0.0000011	0.0000011	0.000001
		Divers Manitarian							
Water	80834	Background, dissolved	0.00000110	0.0000011	0.00000110	0.0000011	0.0000011	0.0000011	0.000001
Water	80749	Background, total	0.00000100	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.000001
Water	80835	0-10 min, overflow, dissolved	0.00000100	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.000001
Water	80836	10-20 min, overflow, dissolved	0,00000100	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.000001
Water	80837	20-30 min, overflow, dissolved	0.00000100	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.000001
Water	80750	0-10 min, overflow, total	0.00000110	0.0000011	0.00000110	0.0000011	0.0000011	0.0000011	0.000001
Water	80751	10-20 min, overflow, total	0.00000100	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.000001
Water	80752	20-30 min, overflow, total	0.00000100	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.000001
Water	80838	0-10 min, non-overflow, dissolve	0.00000100	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.000001
Water	80839	10-20 min, non-overflow, dissolve	0.00000110	0.0000011	0.00000110	0.0000011	0.0000011	0.0000011	0.00000
Nater	80840	20-30 min, non-overflow, dissolve	0.00000110	0.0000011	0.00000110	0.0000011	0.0000011	0.0000011	0.000001
Nater	80753	0-10 min, non-overflow, total	0.00000100	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.000001
Vater	80754	10-20 min, non-overflow, total	0.00000100	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.000001
Water	80755	20-30 min, non-overflow, total	0.00000110	0.0000011	0.00000110	0.0000011	0.0000011	0.0000011	0.000001
		Honner Inflow Monitoring							
Nater	80790	38 6 min. dissolved	0.00000100	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0,00000
Vater	80791	9&12 min, dissolved	0.00000100	0.0000010	0.00000100	0.0000010	0.0000010	0.0000007	0.00000
Vater	80792	15&18 min, dissolved	0.00000100	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.00000
Vater	80793	21&24 min. dissolved	0.00000100	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.00000
Vater	80794	27&30 min, dissolved	0.00000100	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.00000
Water	80692	38, 6 min, total	0.00000100	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.00000
Nater	80693	9&12 min, total	0.00000100	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.00000
Nater	80694	15&18 min, total	0.00000250	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.00000
Vater	80695	21&24 min, total	0.00000240	0.0000011	0.00000110	0.0000011	0.0000011	0.0000011	0.00000
Nater	80696	27&30 min, total	0.00000250	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.00000
		Honner Overflow Monitoring							
Nator	80795	78 4 min dissolved	0.00000100	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0 00000
Nater	80796	6& 8 min, dissolved	0.00000100	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.00000
Nater	80797	10812 min dissolved	0.00000100	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.00000
Nater	80798	14816 min dissolved	0.00000100	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.00000
Nater	80799	18820 min dissolved	0.00000100	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.00000
Water	80698	28 4 min total	0.00000100	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.00000
Water	80699	6& 8 min. total	0.00000100	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.00000
Nater	80700	10812 min. total	0.00000100	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.00000
Water	80701	14&16 min. total	0.00000110	0.0000011	0.00000110	0.0000011	0.0000011	0.0000011	0.00000
Nater	80702	18&20 min, total	0.00000100	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.000001
		Site Mater							
Water	81594	Samole 1 Total	0.00000100	0.0000010	0 00000054	0.0000010	0.0000010	0.0000010	0.00000
Vater	81595	Sample 2 Total	0.00000047	0.0000010	0.00000097	0.0000010	0.0000010	0.0000010	0.00000
Vater	81596	Sample 3 Total	0.00000100	0.0000010	0.00000057	0.0000010	0.0000010	0.0000010	0.00000
		These							
Vater	81600	Sample 1 Dissolved	0.0000036	0.0000010	0.0000062	0.0000010	0.0000010	0.0000010	0.00000
Vater	81604	Sample 7 Dissolved	0.00000032	0.0000010	0.0000002	0.0000010	0.0000010	0.0000010	0.00000
Vater	81602	Sample 2 Dissolved	0.00000032	0.0000010	0.0000046	0.0000010	0.0000010	0.0000010	0.00000
Valer	81507	Sample 1 Total	0.00000100	0.0000010	0.00000000	0.0000010	0.0000010	0.0000010	0.00000
Vater	81509	Sample 7 Total	0.00000100	0.0000010	0.00000045	0.0000010	0.0000010	0.0000010	0.00000
Vater	81599	Sample 3 Total	0.00000100	0.0000010	0.00000049	0.0000010	0.0000010	0.0000010	0.00000
			000 405	000 444	000 440	000 404	000 100	000 490	000 1
YPE	ID	DESCRIPTION	PCB 105	PCB 114	PCB 118	PCB 121	PCB 128	PCB 136	PCB
		Detection Limit (mg/kg)	0.00033	0 00033	0 00033	0.00033	0.00033	0.00033	0.000
		Insitu Sediment	1000		100000	1 marsh	1201	inna-	20.
Sediment	81714	Sample #1	0.00033	0.00033	0.00010	0.00033	0.00033	0.00033	0.000
Sediment	81715	Sample #2	0.00033	0.00033	0 00016	0.00033	0.00033	0.00033	0.000
War of the local division of the	81716	Sample #3	0.00033	0.00033	0.00020	0.00033	0.00033	0.00033	0.0003

				10030					
		Delaware River Water Analysis (Coar	se-Grained Site)						
SAMPLE TYPE	SAMPLE	DESCRIPTION	PCB 138	PCB 141	PCB 151	PCB 153	PCB 156	PCB 167	PCB 1
		Detection Limit (mg/l)	0.0000011	0,0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.000001
		Plume Monitoring							
Nater Nater	80834 80749	Background, dissolved Background, total	0.0000011 0.0000010	0.0000011 0.0000010	0.0000011 0.0000010	0.0000007	0.0000011 0.0000010	0.0000011 0.0000010	0.000001
Water	80835	0-10 min, overflow, dissolved	0.0000004	0.0000010	0.0000010	0.0000009	0.0000010	0.0000010	0.000001
Vater	80836	10-20 min, overflow, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
Vater	80750	0-10 min, overflow, total	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.00000
Vater	80751	10-20 min, overflow, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
Vater	80752	20-30 min, overflow, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
Vater	80838	0-10 min, non-overflow, dissolve	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
Vater	80839	10-20 min, non-overflow, dissolve	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.00000
Vater	80840	20-30 min, non-overflow, dissolve	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.00000
Vater	80754	10-20 min, non-overflow, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
Vater	80755	20-30 min, non-overflow, total	0.0000011	0.0000011	0.0000011	0.0000010	0.0000011	0.0000011	0.00000
		Hopper Inflow Monitoring							
Vater	80790	3& 6 min, dissolved	0.000006	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
Vater	80791	9&12 min, dissolved	0.0000005	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
Vater	80793	21824 min, dissolved	0.0000007	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
Vater	80794	27&30 min, dissolved	0.0000014	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
/ater	80692	38 6 min, total	0.0000019	0.0000010	0.0000010	0.0000030	0.0000010	0.0000010	0.00000
vater Vater	80694	15&18 min, total	0.0000043	0.0000010	0.0000010	0.0000048	0.0000010	0.0000010	0.00000
ater	80695	21824 min, total	0.0000034	0.0000011	0.0000011	0.0000055	0.0000011	0.0000011	0.00000
/ater	80696	27&30 min, total	0.0000029	0.0000010	0.0000010	0.0000036	0.0000010	0.0000010	0.00000
		Hopper Overflow Monitoring					0.000004.0		0.00000
Vater	80795	58 8 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
Vater	80797	10&12 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
Vater	80798	14&16 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
Vater	80799	18820 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
Vater	80699	68 8 min. total	0.0000013	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
Vater	80700	10&12 min, total	0.0000011	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
Vater Vater	80701 80702	14&16 min, total 18&20 min, total	0.0000020	0.0000011 0.0000010	0.0000011 0.0000010	0.0000011 0.0000010	0.0000011 0.0000010	0.0000011 0.0000010	0.00000
		Cito Water							
Vater	81594	Sample 1 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
/ater /ater	81595 81596	Sample 2 Total Sample 3 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
		Flutnate							
/ater	81600	Sample 1 Dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
/ater	81601	Sample 2 Dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
/ater	81602	Sample 3 Dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
/ater	81598	Sample 2 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
ater	81599	Sample 3 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
AMPLE	SAMPLE	DESCRIPTION	PCB 138	PCB 141	PCB 151	PCB 153	PCB 156	PCB 167	PCB
		Detection Limit (mg/kg)	0.00033	0,00033	0.00033	0 00033	0 00033	0 00033	0.00
		Insitu Sediment				0.00075	0 00000	0.00020	
Acres 1	81/14	Sample #1	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033	0.00
ediment	81715	The second se				2 - 2 T T T T	1.000		

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				PCBsc	isoar				
		Delaware River Water Analysis (Coar	se-Grained Site)						
	SAMDLE	DESCRIPTION	DCB 171	DCB 180	PCP 192	DCB 193	DCD 195	DCD 197	DCB
YPE	ID	DESCRIPTION .	100 111	100100	100 102	100 100	100 100	FGB 107	FGB
		Detection Limit (mg/l)	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000
ater	80834	Plume Monitoring Background, dissolved	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000
ater	80749	Background, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	80835	0-10 min, overflow, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	80836	10-20 min, overflow, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	80750	0-10 min, overflow, dissolved	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000
ater	80751	10-20 min, overflow, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	80752	20-30 min, overflow, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	80838	0-10 min, non-overflow, dissolve	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000
ater	80839	10-20 min, non-overflow, dissolve	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000
ater	80840	20-30 min, non-overflow, dissolve	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000
ater	80754	10-20 min, non-overflow, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	80755	20-30 min, non-overflow, total	0.0000011	0.0000011	0.0000011	0.0000010	0.0000011	0.0000011	0.000
		Honner Joflow Monitoring							
ater	80790	3& 6 min. dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	80791	9&12 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	80792	15&18 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	80793	21&24 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	80692	3& 6 min total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000021	0.0000
ater	80693	9812 min, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000017	0.0000
ater	80694	15&18 min, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000033	0.0000
ater ater	80695 80696	21&24 min, total 27&30 min, total	0.0000011	0.0000011 0.0000010	0.0000011 0.0000010	0.0000011 0.0000010	0.0000011 0.0000010	0.0000011	0.0000
		al and the second							
ator	20705	Hopper Overflow Monitoring	0 0000010	0.0000010	0 0000010	0.0000010	0.0000010	0.0000010	0.000
ater	80796	6& 8 min dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	80797	10&12 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	80798	14&16 min_ dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	80799	18&20 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	80698	28 4 min, total	0.0000010	0.0000015	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	80700	10812 min total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	80701	14&16 min, total	0.0000011	0.0000024	0.0000011	0.0000011	0.0000011	0.0000011	0.0000
ater	80702	18&20 min, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
		Site Water							
ater	81594	Sample 1 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	81595 81596	Sample 2 Total Sample 3 Total	0.0000010	0.0000010	0.0000010 0.0000010	0.0000010 0.0000010	0.0000010	0.0000010	0.0000
	120322					14 1943 2 1942			
ater	81600	Elutriate Sample 1 Dissolved	0.0000010	0.000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	81601	Sample 2 Dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000
ater	81602	Sample 3 Dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	81597	Sample 1 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	81598	Sample 2 Total Sample 3 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
-	CANDI C	DESCRIPTION	DCD 474	PCP 480	DCD 493	DCB 183	PCP 125	PCB 197	DCB
PE	ID	DESCRIPTION	PCB1/1	PUB TOU	PCB 10Z	PGB 103	PGB 103	FCD 197	FUB
		Detection Limit (mg/kg)	0.00033	0.00033	0.00033	0.00033	0.00033	0,00033	0.00
	04744	Insitu Sediment	0.00033	0.00035	0 00072	0 00033	0 00022	0 00033	0.00
diment	81715	Sample #1	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033	0.00
unnerit	91/13	Complete #2	0.00022	0.00033	0.00033	0.00033	0 00033	0.00033	0.00

PCBscoar

Delaware River Water Analysis (Coarse-Grained Site)

SAMPLE	SAMPLE	DESCRIPTION	PCB 191	PCB 194	PCB 195	PCB 196	PCB 201	PCB 203	PCB 2
THE.		Detection Limit (ma/l)	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0 00000
					2.20002.00M	20022-024.0	and a second sec	all second second	
inno	00004	Plume Monitoring							
Vater Vater	80749	Background, dissolved Background, total	0.0000010	0.0000010	0.0000010	0.0000011	0.0000010	0.0000011	0.00000
Vater	80835	0-10 min, overflow, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
Vater	80836	10-20 min, overflow, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
Vater	80837	20-30 min, overflow, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
Vater	80750	0-10 min, overflow, total	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.00000
Vater	80751	10-20 min, overflow, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
Vater	80752	20-30 min, overflow, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
Vater	80838	0-10 min, non-overflow, dissolve	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
Vater	80839	10-20 min, non-overflow, dissolve	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.00000
Vater	80840	20-30 min, non-overflow, dissolve	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000
Vater	80753	0-10 min, non-overflow, total	0.0000010	0,0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
Vater	80754	10-20 min, non-overflow, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
Vater	80755	20-30 min, non-overflow, total	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.00000
		Hoppor Joffey Magitaring							
Jater	80790	3% 6 min dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
/ater	80791	9812 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
vater	80792	15&18 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
/ater	80793	21&24 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
/ater	80794	27&30 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
/ater	80692	3& 6 min, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
Vater	80693	9&12 min, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
/ater	80694	15&18 min, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
/ater	80695	21&24 min, total	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000
/ater	80696	27&30 min, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
		Happer Quadley Magitaring							
Valor	90705	28. 4 min. discolued	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	80795	68 8 min dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
Vater	80707	10812 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
Valer	80708	14816 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
Vale	80790	188.70 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
Valer	80608	28. 4 min. total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
Vater	80690	68 8 min total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
Vater	80700	10812 min. total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
Vater	80701	14816 min total	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000
Vater	80702	18&20 min, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
		ST. 11.1.1							
Vater	81594	Sample 1 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
Jater	81595	Sample 7 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
/ater	81596	Sample 3 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
		FL 43-44							
later	81600	Elutriate Sample 1 Dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0 0000010	0.0000
ater	81601	Sample 7 Dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
/ater	81602	Sample 3 Dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
Vater	81597	Sample 1 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
Vater	81598	Sample 2 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
Vater	81599	Sample 3 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
	SAMPLE	DESCRIPTION	PCB 191	PCB 194	PCB 195	PCB 196	PCB 201	PCB 203	PCB
YPE	ID	DESCRIPTION	1.00101	100104	100100	100 100	100.001		
		Detection Limit (mg/kg)	0.00033	0.00033	0.00033	0,00033	0.00033	0.00033	D.000
		Insitu Sediment							
ediment	81714	Sample #1	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033	0.00
ediment	81715	Sample #2	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033	0.000
Inamiha.	81716	Sample #3	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033	0.000
- man	Contractor -								
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PCH	scoar								

Delaware	River	Water	Analy	sis (Coars	e-Grained	Site
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				PCBS	uuar				
		Delaware River Water Analysis (Coar	se-Grained Site)						
	SAMPLE	DESCRIPTION	PCB 206	PCB 207	PCB 208	PCB 209	PCB 66	PCB 190	PCB ·
		Detection Limit (mg/l)	0,0000011	0.00000110	0 00000110		0.0000011	0.0000011	0.0000
		Plume Monitoring							
/ater /ater	80834 80749	Background, dissolved Background, total	0.0000020	0.00000040	0.00000080	110.02% 95.61%	0.0000011 0.0000010	0.0000011 0.0000010	0.00000
ater	80835	0-10 min, overflow, dissolved	0.0000017	0.00000100	0.0000050	100.35%	0.0000010	0.0000010	0.0000
ater	80836	10-20 min, overflow, dissolved	0.0000018	0.00000100	0 00000080	110.93%	0.0000010	0.0000010	0.0000
ater	80837	20-30 min, overflow, dissolved	0.0000020	0.00000100	0 00000060	109 27%	0.0000010	0.0000010	0.0000
ater	80751	10-20 min, overflow, total	0.0000017	0.00000100	0.00000050	89.46%	0.0000010	0.0000010	0.0000
ater	80752	20-30 min, overflow, total	0.0000017	0.00000100	0.0000060	99.52%	0.0000010	0.0000010	0.0000
ter	80838	0-10 min, non-overflow, dissolve	0.0000020	0.00000100	0.00000070	111.00%	0.0000010	0.0000010	0.0000
ater	80839	10-20 min, non-overflow, dissolve	0.0000019	0.00000110	0.0000080	109.59%	0.0000011	0.0000011	0.0000
ater	80753	20-30 min, non-overflow, dissolve	0.0000022	0.00000110	0.00000070	94 00%	0.0000011	0.0000011	0,0000
iter	80754	10-20 min, non-overflow, total	0.0000016	0.00000100	0.00000050	92.43%	0.0000010	0.0000010	0.0000
ster	80755	20-30 min, non-overflow, total	0.0000017	0.00000110	0 0000060	103.87%	0.0000011	0.0000011	0.0000
		Hopper Inflow Monitoring							
ater	80790	3& 6 min, dissolved	0.0000016	0.00000100	0.0000060	102.69%	0.0000010	0.0000010	0.0000
ter	80791	9&12 min, dissolved	0.0000015	0.00000100	0.00000050	93.31%	0.0000010	0.0000010	0.0000
ter	80793	21&24 min, dissolved	0.0000013	0.00000100	0.00000100	83.82%	0.0000010	0.0000010	0.0000
ter	80794	27&30 min, dissolved	0.0000013	0.00000100	0.00000040	74.65%	0.0000011	0.0000010	0.0000
ter	80692	3& 6 min, total	0.0000013	0.00000100	0.00000100	75.42%	0.0000010	0.0000010	0.0000
ater	80693	15818 min, total	0.0000019	0.00000100	0.00000100	7476%	0.0000010	0.0000010	0.0000
ater	80695	21&24 min, total	0.0000022	0.00000130	0.00000048	77.49%	0.0000011	0.0000011	0.0000
ster	80696	27&30 min, total	0.0000018	0.00000150	0.0000064	61.74%	0.0000010	0.0000010	0.0000
		Hopper Overflow Monitoring							
ater	80795	2& 4 min, dissolved	0.0000016	0.00000100	0.00000050	97.89%	0.0000010	0.0000010	0.0000
iter	80795	10812 min, dissolved	0.0000017	0.00000100	0.00000050	100 24%	0.0000010	0.0000010	0.0000
ter	80798	148,16 min, dissolved	0.0000017	0.00000100	0.00000050	105.68%	0.0000010	0.0000010	0.0000
ter	80799	18&20 min, dissolved	0.0000017	0.00000100	0.00000050	105.68%	0.0000010	0.0000010	0.0000
ter	80698	2& 4 min, total	0.0000016	0.00000100	0.00000055	60.08%	0.0000010	0.0000010	0.0000
ter	80700	10812 min total	0.0000031	0.00000100	0.00000100	145 37%	0.0000010	0.0000010	0.0000
ater	80701	14&16 min, total	0.0000020	0.00000110	0.00000110	98.00%	0.0000011	0.0000011	0.0000
ter	80702	18&20 min, total	0.0000016	0.00000100	0.00000100	88 00%	0.0000010	0.0000010	0.0000
	2022	Site Water			1 10007352	(geota)			
iter	81594	Sample 1 Total Sample 2 Total	0.0000026	0.00000110	0.00000130	95.54%	0.0000010	0.0000010	0.0000
ster	81596	Sample 3 Total	0.0000024	0 00000085	0.00000120	98 44%	0.0000010	0.0000010	0.0000
		Elutriate							
ater	81600	Sample 1 Dissolved	0.0000025	0.0000088	0.00000140	110.94%	0.0000010	0.0000010	0.0000
ter	81601	Sample 2 Dissolved	0.0000022	0.00000083	0.00000120	92.51%	0.0000010	0.0000010	0.0000
iter	81597	Sample 1 Total	0.0000022	0.00000064	0.00000110	97 19%	0.0000010	0.0000010	0.0000
iter	81598	Sample 2 Total	0.0000021	0.00000051	0.0000097	100.67%	0.0000010	0.0000010	0.0000
ter	81599	Sample 3 Total	0.0000022	0.00000100	0.00000110	103,83%	0.0000010	0.0000010	0.0000
MPLE	SAMPLE	DESCRIPTION	PCB 206	PCB 207	PCB 208	PCB 209	PC8 66	PCB 190	PCB
		Detection Limit (mg/kg)	0,00033	0 00033	0.00033		0.00033	0.00033	0.00
		Insitu Sediment	0.00040		0.00040	100 000		0.00000	
diment	81714	Sample #1 Sample #2	0,00019	0.00033	0.00015	109.80%	0.00033	0.00033	0.00
ament	01/10	Sample #2	0.00044	0.00033	0.00033	103,0076	0.00033	0.00055	0,00

BOLD - less than values Values below less than values are estimated results. Results are less than the reporting limit.

PCBscoar	

Page 13

Delaware River Water Analysis (Coarse-Grained Site)

SAMPLE	SAMPLE	DESCRIPTION	PCB 200
		Detection Limit (mg/l)	0.0000011
		Diama Manifesima	
Mater	80834	Background dissolved	0.0000011
Water	80749	Background, total	0.0000010
Water	20935	0.10 min overflow dissolved	0.0000010
Water	80836	10-20 min overflow dissolved	0.0000010
Water	80837	20-30 min overflow dissolved	0.0000010
Water	80750	0-10 min, overflow, total	0.0000011
Water	80751	10-20 min overflow total	0.0000010
Water	80752	20-30 min, overflow, total	0.0000010
Water	80838	0-10 min non-overflaw dissol	Ve 0.0000010
Water	80839	10-20 min, non-overflow, dissol	ve 0.0000011
Water	80840	20-30 min, non-overflow, dissol	ve 0.0000011
Water	80753	0-10 min, non-overflow, total	0.0000010
Water	80754	10-20 min, non-overflow, total	0.0000010
Water	80755	20-30 min, non-overflow, total	0.0000011
		Arrest Carrie Caraca	
1412412	00700	Hopper Inflow Monitoring	0.0000040
water	80790	36 c min, dissolved	0.0000010
water	80700	solt2 min, dissolved	0.000010
water	80792	10&10 min, dissolved	0.000010
vvater	80/93	21&24 min, dissolved	0.0000010
vvater	80794	27&30 min, dissolved	0.0000010
Water	00092	0812 min total	0.0000010
Water	80693	15819 min total	0.0000010
Water	80694	21824 min, total	0.0000011
Water	80696	27830 min total	0.0000010
VVale,	50050	27 doo min, total	0.000010
		Hopper Overflow Monitoring	
Water	80795	28 4 min, dissolved	0.0000010
Water	80796	6& 8 min, dissolved	0.0000010
Water	80797	10&12 min, dissolved	0.0000010
Water	80798	14&16 min, dissolved	0.0000010
Water	80799	18&20 min, dissolved	0.0000010
Water	80698	2& 4 min, total	0.0000010
Water	80699	6& 8 min, total	0.0000010
Water	80700	10&12 min, total	0.0000010
Water	80701	14&16 min, total	0.0000011
Water	80702	18&20 min, total	0.0000010
		Site Water	
Water	81594	Sample 1 Total	0.0000010
Water	81595	Sample 2 Total	0.0000010
Water	81596	Sample 3 Total	0.0000010
		a.m.	
Water	81600	Elutriate Sample 1 Dissection	0.0000010
Water	81600	Sample 7 Dissolved	0.0000010
Water	81602	Sample 2 Dissolved	0.0000010
Water	81507	Sample 1 Total	0.0000010
Water	81598	Sample 2 Total	0.0000010
Water	81599	Sample 3 Total	0.0000010
SAMPLE	SAMPLE	DESCRIPTION	PCB 200
in e	10	and the second	0.00000
		Detection Limit (mg/kg)	0.00033
	22.2	Insitu Sediment	a same
Sediment	81714	Sample #1	0.00033
Sediment	81715	Sample #2	0.00033
Sediment	81716	sample #3	0.00033
BOLD - le	ss than valu	les	
Values be	low less that	in values are estimated results	Results are less than the reporting limit.
			Pa

	TS	Det Limit 4	40 min 50 min 20 250 80 251 80 840 840 840 840 840 840 840 840 840	7 min 8 min 12 min 15 min 20 min 26 min 30 min Plume Monitoring NOF 100 95 120 120 80 120 3354 110 110 210 170 310 31566 120 210 290 85 31566 120 270 280 155 2354 120 270 280 155 3306 120 270 280 155 330	7 min 8 min 12 min 15 min 20 min 30 min Plume Monitoring OF 105 9.0 15.5 140 24.0 145 540/78 100 100 12.5 130 135 150 45.5 540/78 120 125 180 150 150 145 540/78 120 125 180 150 150 145 540/78 32400	12 min 15 min 18 min 21 min 24 min 27 min 30 min Hopper Inflow 1220 840 1300 1320 1045 2040 26150 Sample 2 34753 Sample 2 34280 Sample 3 3733 Sample 3 3733	Sample 5 40653		20 min 25 min 3,0 min 3,5 min 4,0 min 4,5 min 5,0 min Hopper Overflow 39427 2868 836 862 800 800 1416 1048 Sample 1 39427	70 min 75 min 80 min 85 min 8,0 min 95 min 10,0 min 5 sample 2 35190 890 800 1046 730 820 750 1164 Sample 4 3400	120 min 125 min 130 min 135 min 140 min 145 min 150 min Sentpers 331 kr 772 954 732 968 642 788 668	17.0 mini 17.5 mini 18.0 mini 18.0 mini 19.5 mini 20.0 mini 1076 514 1112 2090 2468 8084 9590	TS She Water Sample 1 7 31216 Sample 21 30362 Sample 31 30662	Elutritate Sample 1 D 30900 Sample 2 D 30270 Sample 3 D 30570
			n 30 min 0 7,5 0 10,0 5 11,0	n 5min 0 10.5 5 15.5	n 5min 0 245 0 105 0 125	n 9 min 0 1310	2 Location 3 0 1827 0 1395 0 1800	2 Location 3 7 1290 0 303 7 657	n 1.5 min 0 982	n 6.5 min 0 728	n 11.5 min 8 634	n 18.5 min 4 1424		
		5	20 m 28 10	E 21 21 21	8 8 8 8 8 8 8 8 8 8 8	6 ⁶	Location 87 128 130	Location 83 1461	1.0 m	m 0.9	11.0 m	16.0 m		- 0.0
rained Site)	TSS	4,0	10 min 8.5 10.5 14.0	1 mir 115 125 105	1 mir 8.8 13.5	3 mir 1840	Location 1 14000 6470 2880	Location 1 690 807 633	0.5 mir 926	5.5 mir 986	10,5 mir 932	15.5 mir 72	8 % N N	F. F. S
Delaware River Water Analysis (Coarse-G	DESCRIPTION	Detection Limit (mg/l)	Plume Monitoring Background TSS Top Depth TSS Mid-Depth TSS Bottom Depth	Plume Monitoring Non-Overflow TSS Top Depth TSS Mid-Depth TSS Bottom Depth	Plurre Monitoring Overflow TSS Top Depth TSS Mid-Depth TSS Bottom Depth	Hopper Inflow TSS (mg/l)	Hopper Contents Beginning of Overflow TSS Top Depth TSS Mid-Depth TSS Bottom Depth	Hopper Contents End of Overflow TSS Top Depth TSS Mid-Depth TSS Bottom Depth	Hopper Overflow TSS (mg/i)	Hopper Overflow TSS (mg/l)	Hopper Overflow TSS (mg/l)	Hopper Overflow TSS (mg/)	Site Water Sample 1 Total Sample 2 Total Sample 3 Total	Elutriate Sample 1 Dissolved Sample 2 Dissolved Sample 2 Dissolved Sample 3 Torlal
	SAMPLE		81134 81135 81135	81179 81180 81181	81149 81150 81151	81314	81334 81335 81335	81343 81344 81344	81004	81014	81024	81034	81665 81667 81667 81668	81672 81673 81673 81674 81668
	SAMPLE		Water Water Water	Water Water Water	Water Water Water	Water	Water Water Water	Water Water Water	Water	Water	Water	Water	Water Water Water	Water Water Water Water

nutrcoar

Delaware River Water Analysis (Coarse-Grained Site)

TYPE	ID		.50
		Detection Limit (mg/l)	3.00
10-1-1		Plume Monitoring	
Water	80820	Background, dissolved	5.67
Nater	80728	Background, total	8.00
Water	80821	0-10 min, overflow, dissolved	8.98
Water	80822	10-20 min, overflow, dissolved	11.30
Water	80823	20-30 min overflow dissolved	9.35
Nater	80729	0-10 min overflow total	7.92
Water	80730	10-20 min overflow total	7 59
Nater	80731	20-30 min, overflow, total	8.86
Nater	80824	0-10 min non-overflow dissolved	10.20
Nater	80825	10-20 min non-overflow dissolved	10.30
Matar	80826	20.30 min, non-overflow, dissolved	10.10
Mater	80732	0-10 min, non-overflow, total	6.80
Nater	80733	10-20 min non-overflow total	10.30
Vater	80734	20-30 min, non-overflow, total	8.52
1000 m		Hopper Inflow Monitoring	
Vater	80770	3& 6 min, dissolved	14.80
Vater	80771	9&12 min, dissolved	3.45
Vater	80772	15&18 min, dissolved	13.50
Vater	80773	21&24 min, dissolved	14 50
Nater	80774	27&30 min, dissolved	16.20
Nater	80656	3& 6 min, total	216.00
Vater	80657	9&12 min, total	46,80
Nater	80658	15&18 min, total	16.50
Vater	80659	21&24 min, total	28.60
Vater	80660	27&30 min, total	54.20
		New Porter House	
		Hopper Overflow Monitoring	10.40
vater	80775	2& 4 min, dissolved	12.40
Vater	80776	6% 8 min, dissolved	11 20
Vater	80///	10&12 min, dissolved	13.80
Vater	80778	14&15 min, dissolved	11.80
Vater	80779	18&20 min, dissolved	16.60
Vater	80662	28, 4 min, total	41.90
Vater	80663	6& 8 min, total	4.56
Vater	80664	10&12 min, total	12.10
Vater Vater	80665 80666	14&16 min, total 18&20 min, total	59.40
		Site Water	5.40
Nater	81684	Sample 1 Total	5.12
vater Vater	81685	Sample 2 Total Sample 3 Total	1.21
	1		
	Sec.	Elutnate	5.44
Vater	81690	Sample 1 Dissolved	1.07
Vater	81691	Sample 2 Dissolved	3.00
Vater	81692	Sample 3 Dissolved	3.00
Vater	81687	Sample 1 Total	1,32
Vater	81688	Sample 2 Total	3.00
Vater	81689	Sample 3 Total	3.00
AMPLE	SAMPLE	DESCRIPTION	TOC
YPE	D		
		Detection Limit (mg/kg)	3.0
		Insitu Sediment	
sediment	61720	Sample #1	174.0
Sediment	81721	Sample #2	155.0
Sediment	81722	Sample #3	170.0
BOLD - les	s than value	5	
/alues bel	ow less than	values are estimated results. Results are l	ess than the repor
			1000
			Page 1

spgrcoar

Delaware River Water Analysis (Coarse-Grained Site)

SAMPLE	SAMPLE	DESCRIPTION		Sp. Gr.	%Moisture	
TYPE	ID					
		Insitu Sediment				
Sediment	81209	Sample #1		2.71	22.57%	
Sediment	81210	Sample #2		2.70	25.39%	
Sediment	81211	Sample #3		2.71	22.00%	
Sediment	81212	Sample #4		2.71	23.83%	
Sediment	81213	Sample #5		2.71	21.04%	
Sediment	81214	Sample #6		2.72	20.33%	
Sediment	81215	Sample #7		2.71	20.06%	
Sediment	81216	Sample #8		2.72	21.82%	
Sediment	81217	Sample #9		2.72	21.30%	
Sediment	81218	Sample #10		2.72	19.87%	
Sediment	81219	Sample #11		2.74	23,49%	
Sediment	81220	Sample #12		2.74	20.47%	
Sediment	81221	Sample #13		2.73	23.70%	
Sediment	81222	Sample #14		2.74	20.90%	
Sediment	81223	Sample #15		2.73	21.95%	
			Average	2.72	21.91%	

		Delaware River Water Analysis (Fine	-Grained Site)							
AMPLE	SAMPLE	DESCRIPTION	SB	AS	BE	CD	CR	cu	PB	HG
		Detection Limit (mg/l)	0.0030	0.002	0.002	0,0002	0.002	0.001	0.0010	0.0002
		Plume Monitoring					2.00	2227	2	-
/ater /ater	80976 80934	Background, dissolved Background, total	0.0030	0.007	0.001	0.0002	0.002	0.004	0.0045	0.0002
/ater	80977	0-10 min, overflow, dissolved	0.0030	0.006	0.001	0.0002	0.002	0.001	0.0010	0.0002
/ater	90979	20-30 min, overflow, dissolved	0.0030	0.006	0.001	0.0002	0.002	0.003	0.0010	0.0002
/ater	80935	0-10 min, overflow, total	0.0030	0.011	0.001	0.0002	0.019	0.009	0 0190	0.0002
/ater /ater	80936 80937	20-30 min, overflow, total	0.0030	0.013	0.001	0.0002	0.018	0.008	0.0160	0.0002
/ater	80980	0-10 min, non-overflow, dissolved	0.0030	0.008	0.001	0.0002	0.002	0.003	0.0010	0.0002
/ater	80981	10-20 min, non-overflow, dissolved	0.0030	0.008	0.001	0.0002	0.002	0.003	0.0017	0.0002
/ater	80982	20-30 min, non-overflow, dissolved	0.0030	0.008	0.001	0.0002	0.002	0.001	0.0010	0.0002
/ater	90939	10-20 min, non-overflow, total	0.0030	0.010	0.001	0.0002	0.004	0.008	0.0030	0.0002
later	80940	20-30 min, non-overflow, total	0.0030	0.011	0.001	0.0002	0.003	0.005	0.0030	0.0002
		Hopper Inflow Monitoring								
/ater	81094	3& 6 min, dissolved	0.0030	0.009	0.001	0.0002	0.002	0.001	0.0015	0.0002
/ater /ater	81095	9&12 min, dissolved 15&18 min, dissolved	0.0030	0.019	0.001	0.0002	0.002	0.001	0.0017	0.0002
/ater	81097	21&24 min, dissolved	0.0030	0,009	0.001	0.0002	0.002	0.001	0.0011	0.0002
/ater	81098	27&30 min, dissolved	0.0030	0.019	0.001	0.0002	0.002	0.001	0.0010	0.0002
vater Vater	80867	9&12 min, total	0.0156	0.392	0.040	0.0527	3.980	2.520	4 4000	0.0019
Vater	80869	15&18 min, total	0.0870	1,470	0 140	0.0974	6.550	4.120	7.7500	0.0422
/ater	80870	21&24 min, total	0.0268	0.528	0.056	0.0376	2.510	1.580	2.6800	0.0110
dier	000/1	∠r osou mini, total	0 1090	1,990	0,210	0,1750	3,000	0,900	12,0000	0,0578
	-	Hopper Overflow Monitoring					444			
/ater	81100	2& 4 min, dissolved 6& 8 min, dissolved	0.0030	0.009	0.001	0.0002	0.002	0.001	0.0012	0.0002
Vater	81101	10&12 min, dissolved	0.0030	0.008	0.001	0.0002	0.002	0.001	0.0011	0.0002
/ater	81102	14&16 min, dissolved	0.0030	0.010	0.001	0.0002	0.002	0.001	0.0016	0.0002
/ater /ater	81103	28 4 min, dissolved	0.0030	1.460	0.001	0.0002	6,700	4 410	7 9500	0.0354
Vater	80874	6& 8 min, total	0.0950	1.440	0.140	0.0055	6.640	4.300	7 9000	0.0281
Vater	80875	10&12 min, total	0.0840	1.290	0.130	0.0899	6.000	4.000	6.0500	0.0244
vater Vater	80876	18&20 min, total	0.0815	1.600	0 160	0.1170	7.450	4.980	7.9500	0.0372
		Cite Water								
/ater	81657	Sample 1 Total	0.0030	0.010	0.001	0.0002	0.005	0.005	0.0040	0.0002
/ater /ater	81658 81659	Sample 2 Total Sample 3 Total	0.0030	0.009	0.001	0.0002	0.004	0.004	0.0060	0.0002
/ater	81663	Elutriate Sample 1 Dissolved	0.0030	0.011	0.001	0.0002	0.002	0.002	0.0010	0.0002
/ater	81664	Sample 2 Dissolved	0.0030	0.010	0.001	0.0002	0.002	0.002	0.0010	0.0002
/ater	81665	Sample 3 Dissolved Sample 1 Total	0.0030	0.015	0.001	0.0002	0.002	0.003	0.0010	0.0002
ater	81661	Sample 2 Total	0.0030	0.014	0.001	0.0002	0.025	D.007	0.0140	0.0002
/ater	81662	Sample 3 Total	0.0030	0.014	0.001	0.0002	0.024	0.009	0.0130	0,0002
AMPLE	SAMPLE	DESCRIPTION	SB	AS	BE	CD	CR	cu	PB	HG
		Detection Limit (mg/kg)	0.30	0.2	0,1	0.020	0.2	0 1	1.0	0,020
adian and	84700	Insitu Sediment	0.92	10.3		0 200	44.4	18 3	33.4	0.154
ediment	81730	Sample #2	0.49	10.3	0.9	0.310	42.2	16.8	34.2	0.152
ediment	B1731	Sample #3	0.37	10.1	0.8	0.280	41.0	16.2	32.4	0.166
B - Antim	iony A	S - Arsenic BE - Beryllium	CD - Cadmium	CR - Chro	mium Cl	U - Copper	PB - Lead	HG - Mercu	Y	
OLD - les alues bel	ss than valu ow less than	es values are estimated results. Results	s are less than the	reporting limit						

		Delaware River Water Analysis (Fine-	Grained Site)							
	SAMPLE	DESCRIPTION	NI	SE	AG	π.	ZN	AL	ВА	CA
	1	Detection Limit (mg/l)	0.001	0.002	0.001	0.0020	0.010	0.025	0.002	0.200
		Plume Monitoring			2 222					
ater ater	80976 80934	Background, dissolved Background, total	0.001	0.019 0.025	0.001	0.0020 0.0020	0.053	0.025 2.900	0.223	70.2 67.4
ater	80977	0-10 min, overflow, dissolved	0.001	0.013	0.001	0.0020	0.014	0.025	0.094	57 1
ater	90979	20-30 min, overflow, dissolved	0.001	0.014	0.001	0.0020	0.013	0.025	0.089	53.1
ater	80935	0-10 min, overflow, total	0,007	0.019	0.001	0.0020	0.059	7 920	0.061	56.5
ater later	80936	20-30 min, overflow, total	0.008	0.023	0.001	0.0020	0.050	5.140	0.048	53.6
ater	80980	0-10 min, non-overflaw, dissolved	0.001	0.021	0.001	0.0020	0.058	0.025	0.245	70,9
ater	80981	10-20 min, non-overflow, dissolved	0.001	0.023	0.001	0.0021	0.046	0.025	0.193	69.6
ater	80938	0-10 min, non-overflow, total	0.001	0.027	0.001	0.0020	0.013	1.800	0.170	70.6
ater	90939	10-20 min, non-overflow, total	0.003	0.027	0.001	0.0020	0.017	2 160	0.040	67.6
ater	80940	20-30 min, non-overtiow, total	0.003	0.028	0,001	0.0020	0.010	1.790	0.038	60.
		Hopper Inflow Monitoring				5	0.074	n one	a	
ater /ater	81094	3& 6 min, dissolved 9&12 min, dissolved	0.003	0.015	0.001	0.0020	0.074	0.025	0.435	93 (
ater	81096	15&18 min, dissolved	0 005	0.014	0.001	0.0020	0.076	0.033	0 529	111.0
ater	81097	21&24 min, dissolved	0.003	0.014	0.001	0.0020	0.057	0.028	0.380	108 (
ater	80867	3& 6 min, total	0.912	0.068	0.004	0.0110	5,880	744.0	3.000	178.0
ater	80868	9&12 min, total	1.950	0.116	0.076	0.0160	13.300	1856.0	6.440	392.0
ater	80869	21824 min, total	1.270	0.084	0.044	0.0110	8,760	1110.0	4,200	241.0
later	80871	27&30 min, total	4.750	0.255	0.150	0.0540	34,800	5440 0	16.800	1000 0
		Hopper Overflow Monitoring								
ater	81099	2& 4 min, dissolved	0.005	0.015	0.001	0.0020	0.145	0.025	0 607	117 (
ater	81100	68, 8 min, dissolved 10812 min, dissolved	0 005	0.015	0.001	0.0020	0.157	0.025	0.713	121.0
ater	81102	14&16 min, dissolved	0.005	0.013	0.001	0.0020	0.138	0.025	0.749	119.0
ater	81103	18&20 min, dissolved	0 004	0.013	0 002	0.0020	0 085	0.025	0 551	116.0
ater ater	80874	6& 8 min, total	3.310	0.010	0.005	0.0020	22.900	3080.0	10 700	615 0
/ater	80875	10&12 min, total	3.030	0.141	0.053	0.0230	21.200	2860.0	10.000	565.0
later later	80876	18820 min, total	3 760	0,195	0.078	0.0360	26.800	3740.0	12,500	760.0
		Clauster								
ater	81657	Sample 1 Total	0 002	0.026	0.003	0.0020	0.019	2.330	0.043	59,7
/ater	81658	Sample 2 Total	0.003	0.024	0.002	0.0020	0.019	2.060	0.042	60.7
ater	81659	Sample 3 Total	0.001	0.002	0.002	0.0020	0.018	2.340	0.042	60.2
		Elutriate		1	6.00					-
ater	81663	Sample 1 Dissolved Sample 2 Dissolved	0.003	0.028	0.001	0.0020	0.073	0.185	0.280	67 (
ater	81665	Sample 3 Dissolved	0.002	0.021	0.002	0.0020	0.076	0.105	0 214	66
ater	81660	Sample 1 Total	0.011	0.030	0.002	0.0020	0.075	12,900	0.104	61 3
ater	81662	Sample 3 Total	0.012	0.030	0 002	0.0020	0.072	13 000	0.113	61.9
	SAMPLE	DESCRIPTION	NI	SE	AG	TL	ZN	AL	BA	C/
PE	ID	and a state of								
		Detection Limit (mg/kg)	0.5	0,20	0 100	0.200	1	1	0.1	20
ediment	81729	Insitu Sediment Sample #1	217	1 60	0.700	0.200	131	13300	51.4	2180
ediment	81730	Sample #2 Sample #3	22.2	1.60	0 700	0.200	133	13800	53 5 51 7	2260
annent	31131	Sumple no.	21.0	1.74	9.949		, 50		200	
- Nickel	SE - S	Selenium AG - Silver TL - Ti es	nallium Zt	I-Zinc A	L - Aluminum	BA - Barium	CA - C	Calcium		
lues bel	ow less than	values are estimated results Results	are less than th	e reporting lim	t					

				Metsfir	ne					
		Delaware River Water Analysis (Fine-C	Grained Site)							
SAMPLE TYPE	SAMPLE	DESCRIPTION	co	FE	MG	MN	к	NA	v	
		Detection Limit (mg/l)	0.002	0.020	0.200	0.001	0.20	0.20	0.002	
	20076	Plume Monitoring	0.001	0.020	100	0.000	EC A	15.40	0.004	
Water	80934	Background, total	0.001	2 420	162	0.118	49,6	1350	0.004	
Water	80977 80978	0-10 min, overflow, dissolved 10-20 min, overflow, dissolved	0.001	0.020	121 116	0.062	41 8	1030	0.003	
Water	90979	20-30 min, overflow, dissolved	0.001	0.020	112	0.010	36.4	942	0.003	
Water	80935	0-10 min, overflow, total	0.002	9.710	120	0.465	37.6	916	0.020	
Water	80937	20-30 min, overflow, total	0.001	5,730	109	0,278	34.0	857	0 013	
Water Water	80980	0-10 min, non-overflow, dissolved 10-20 min, non-overflow, dissolved	0.001	0.027	179	0.011	57.8 55.6	1570	0.003	
Water	80982	20-30 min, non-overflow, dissolved	0.001	0.020	160	0.005	55.7	1380	0.002	
Nater	80938	0-10 min, non-overflow, total	0.001	1 420	180	0.073	549	1470	0.006	
Nater	80940	20-30 min, non-overflow, total	0.001	1 140	159	0.061	48.8	1280	0.006	
		Hopper Inflow Monitoring								
Water	81094	3& 6 min, dissolved	0.002	0 928	150	7 600	45.1	1240	0.001	
Nater Nater	81095	15&18 min, dissolved	0.004	10,200	144	9,200	36.1	1030	0.001	
Water	81097	21&24 min, dissolved	0.004	0 467	123	3,840	40.0	1060	0.001	
Water	81098	27&30 min, dissolved	0.006	11,600	127	6.920 58 D	33.6	940	0.002	
Nater	80868	9&12 min, total	1 030	2,860.0	725	132.0	289.0	1104	3.950	
Vater	80869	15&18 min, total	1,700	5,130.0	1180	244.0	451.0	1060	6.550	
Water	80871	27&30 min, total	2.510	9,200 0	1830	412.0	700.0	970	9.650	
		Hopper Overflow Monitoring								
Water	81099	28. 4 min, dissolved	0.004	2.930	151	9.580	32.9	1000	0.001	
Nater Nater	81100	10812 min, dissolved	0.004	5,980	133	7.310	32.3	956	0.001	
Vater	81102	14&16 min, dissolved	0.006	10.900	140	6,460	30.0	932	0.001	
Water Mater	81103	18&20 min, dissolved	0.006	6.410	133	6.810	32.5	895	0.001	
Vater	80874	6& 8 min, total	1,740	2,700.0	1,060	224.0	389.0	970	6.600	
Water	80875	10&12 min, total	1.620	4,160.0	965	197.0	415.0	960	5.900	
Nater	80876	18&20 min, total	1.980	6,150.0	1,320	287.0	510.0	960	7 350	
		Site Water								
Water	81657	Sample 1 Total	0.002	2.420	135	0.120	39.80	1130	0.007	
Vater Vater	81658	Sample 3 Total	0.002	2 470	134	0.121	38,30	1130	0.008	
		Flutriate								
Water	81663	Sample 1 Dissolved	0.003	0.043	146	8.280	40.40	1140	0.006	
Nater	81664	Sample 2 Dissolved	0.002	0.042	153	8.100	40 40	1180	0.007	
Vater	81660	Sample 1 Total	0.002	12,900	61	8.160	36.70	1060	0.032	
Water Water	81661 81662	Sample 2 Total Sample 3 Total	800.0 800.0	13.200 13.000	140 136	8.360 8.430	37 70 33.00	1060 1020	0.034	
			co	FE	MG	MN	к	NA	v	% Moisture
SAMPLE	SAMPLE	DESCRIPTION								
		Detection Limit (mg/kg)	0.1	2	20	0.1	20	20	0.1	
		Insitu Sediment		25 200	5 050	* 070 0	2 000	0110	22.0	CE I
Sediment	81729	Sample #1	11.2	26,200	5,120	1,130.0	2,380	2160	42.6	65.6
Sediment	81731	Sample #3	11.0	25,200	5,070	1,120.0	2,350	2140	37.1	65.6
CO - Cob	alt FE	- Iron MG - Magnesium MN	- Manganese	K - Potass	sium NA	- Sodium	V - Vanadium			
Values bel	ow less that	es values are estimated results. Results	are less than th	he reporting limi	t.					
				Page	3					

PAHsfine

Delaware River Water Analysis (Fine-Grained Site)

YPE	SAMPLE	DESCRIPTION	NAPHTH	ACENAY	ACENAP	FLUORE	PHENAN	ANTRAC	FLANT
		Detection Limit (mg/l)	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.000
		Plume Monitoring							
Vater	80997	Background, dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.000
Vater	80962	Background, total	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0,000
Inter	20002	0.10 min ovorflow dissolved	0.00020	0.00020	0 00020	0.00020	0.00020	0 00020	0.000
Vater	80998	10-20 min, overliow, dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.000
Vater	81000	20-30 min, overflow, dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.000
Vater	80963	0-10 min, overflow, dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.000
Vater	80964	10-20 min, overflow total	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.000
Vater	80965	20-30 min, overflow, total	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
/ater	81001	0-10 min, non-overflow, dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0,00
Vater	81002	10-20 min, non-overflow, dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
/ater	81003	20-30 min, non-overflow, dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
/ater	80966	0-10 min, non-overflow, total	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
ater	80967	10-20 min, non-overflow, total	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
ater	80968	20-30 min, non-overflow, total	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
		Hopper Inflow Monitoring		decen.	alarah.	Quan	1017236	THE LOO	
ater	81124	3& 6 min, dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
ater	81125	9&12 min, dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
ater	81126	15&18 min, dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0,00
ater	81127	21824 min, dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
ater	81128	27&30 min, dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
ater	80915	38, 6 min, total	0 00043	0.00030	0.00030	0.00014	0.00054	0.00031	0.00
ater	80916	9812 min, total	0.00110	0.00030	0.00029	0.00057	0.00349	0.00103	0.00
ater	80917	15&18 min, total	0,00057	0.00030	0.00017	0.00036	0.00217	0.00061	0.00
ater	80918	21&24 min, total	0.00053	0,00030	0.00012	0.00023	0.00158	0,00048	0.00
ater	80919	27830 min, total	0.00183	0.00015	0.00047	0.00085	0.00582	0.00163	0.01
Const 1	24490	Hopper Overflow Monitoring	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	
ater	81129	2& 4 min, dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
ater	81130	6& 8 min, dissolved	0.00030	0.00030	0,00030	0,00030	0.00030	0.00030	0.00
ater	81131	10&12 min, dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
ater	81132	14& 16 min, dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
ater	80024	28 A min, dissolved	0.00030	0.00030	0,00030	0.00051	0.000377	0.00030	0.00
ater	80921	26 4 min, total	0.00120	0.00017	0.00031	0.00068	0.00577	0.00104	0.00
ater	80922	6& 8 min, total	0.00121	0.00012	0.00042	0.00068	0,00529	0.00311	0.01
ater	80923	10&12 min, rotal	0.00062	0,00030	0.00020	0.00054	0.00325	0.00083	0.00
ater /ater	80925	18820 min, total	0.00052	0.00023	0.00073	0.00124	0.00923	0.00259	0.02
one of		to all a many read							
		Site Water							
/ater	81639	Sample 1 Total	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
/ater	81640	Sample 2 Total	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
ater	81641	Sample 3 Total	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
		Elutriate							
ater	81645	Sample 1 Dissolved	0.00030	0.00030	0.00030	0,00030	0.00030	0.00030	0,00
ater	81646	Sample 2 Dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
aler	8164/	Sample 3 Dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
ater	81642	Sample 1 Total	0.00030	0.00030	0.00030	0.00030	0,00030	0,00030	0.00
ater	01043	Sample 2 Total	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
alei	57044	Jample 5 Total	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00
MPLE	SAMPLE	DESCRIPTION	NAPHTH	ACENAY	ACENAP	FLUORE	PHENAN	ANTRAC	FLAN
PE	ID.								
		Detection Limit (mg/kg)	0.0220	0.022	0.022	0.022	0.0220	0,0220	0.
		Insitu Sediment						Sec.	1.1
ediment	81705	Sample #1	0.0640	0.022	0.022	0.015	0.0921	0.0367	0
ediment	81706	Sample #2	0.0591	0.022	0.022	0.014	0,0800	0.0303	0
ediment	81707	Sample #3	0.0581	0.022	0.022	0.015	0.0828	0.0327	0
	det.		C. S. Contractor				diam'r		
APHTH - VTRAC -	Naphthaler Anthracene	e ACENAY - Acenaphthylene FLANTHE - Fluoranthene	ACENAP - A	cenaphthene	FLUORE -	Fluorene	PHENAN - Phe	nanthrene	
alues bel	ow less than	values are estimated results. Results	are less than th	e reporting limit					
				Page 1					

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~	А	н	151	16	e

Delaware	River	Water	Analysis	(Fine-Grained	Site)
Concertaine	111101	* * ULCI	1110119010	the chunce	Unit of

YPE	SAMPLE	DESCRIPTION	PYRENE	CHRYSE	BAANTHR	BBFLANT	BKFLANT	BAPYRE	1123P
		Detection Limit (mg/l)	0,00030	0 00030	0.00030	0,00030	0.00030	0.00030	0,000
		Plume Monitoring							
Vater Vater	80997 80962	Background, dissolved Background, total	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.000
- Cater	COUL	Energien in inter							
/ater	80998	0-10 min, overflow, dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.000
Vater	80999	10-20 min, overflow, dissolved	0.00030	0.00030	0.00030	0.00030	0,00030	0.00030	0,000
/ater	81000	20-30 min, overflow, dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.000
vater	80963	0-10 min, overnow, total	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.000
ater	80965	20-30 min, overflow, total	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.000
/ater	81001	0-10 min, non-overflow, dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
ater	81002	10-20 min, non-overflow, dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
ater	81003	20-30 min, non-overflow, dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
ater	80966	0-10 min, non-overflow, total	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
ater ater	80968	20-30 min, non-overflow, total	0.00030	0.00030	0,00030	0.00030	0.00030	0.00030	0.000
		the second second second							
ator	81124	Hopper Inflow Monitoring	0.00030	0.00030	0 00030	0 00030	0 00030	0.00030	0.00
ater	81125	9812 min dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
ater	81126	15&18 min dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
ater	81127	21&24 min dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
ater	81128	27&30 min, dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
ater	80915	3& 6 min, total	0 00227	0.00159	0.00118	0.00177	0.00120	0,00088	0.00
ater	80916	9&12 min, total	0.00782	0.00547	0.00451	0.00492	0,00385	0.00519	0.00
ater	80917	15&18 min, total	0.00465	0.00341	0.00276	0.00371	0.00227	0.00360	0.00
ater	80918	21&24 min, total	0.00364	0.00256	0.00204	0.00236	0.00183	0.00246	0.00
ater	80919	27&30 min, total	0.01400	0.00948	0.00841	0.00785	0.00629	0.00838	0.00
		Hopper Overflow Monitoring							
ater	81129	2& 4 min, dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
ater	81130	6& 8 min, dissolved	0.00030	0.00030	0.00030	0,00030	0.00030	0.00030	0.00
ater	81131	10&12 min, dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
ater	81132	14&16 min, dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
ater	81133	18&20 min, dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
ater	80921	2& 4 min, total	0.00903	0.00642	0.005/6	0.00548	0 00433	0.00614	0.00
ater	80922	10812 min total	0.01270	0.00907	0.00668	0.00623	0.00014	0.00038	0.00
ater	80923	14816 min total	0.00611	0.00566	0.00472	0.00555	0.00437	0.00019	0.00
ater	80925	18820 min, total	0 02000	0.01380	0.01290	0.01160	0.00953	0.01220	0.01
		Site Water							
ater	81639	Sample 1 Total	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
ater	81640	Sample 2 Total	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
ater	81641	Sample 3 Total	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
		Flutnate							
ater	81645	Sample 1 Dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
ater	81646	Sample 2 Dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
ater	81647	Sample 3 Dissolved	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
ater	B1642	Sample 1 Total	0.00010	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
ater	81643 81644	Sample 2 Total Sample 3 Total	0.00010	0.00030	0.00030	0.00030	0.00030	0.00030	0.00
MPLE	SAMPLE	DESCRIPTION	PYRENE	CHRYSE	BAANTHR	BBFLANT	BKFLANT	BAPYRE	11231
PE	ID								
		Detection Limit (mg/kg)	0.022	0.022	0.0220	0.0220	0.0220	0.0220	0.0
	L. S. E.	Insitu Sediment				gauge	1000		
diment	81705	Sample #1	0.196	0.145	0.1290	0.08/1	0.1090	0.1120	0.0
diment diment	81705	Sample #3	0.146	0,107	0.0858	0.0742	0.0727	0.0828	0.0
-			D. Desuglation		DOD ANT ON	no/b)Elupro-th			
RENE -	Pyrene Benzo/k)E	CHRYSE - Chrysene BAANTH Upranthene BAPYRE - Benzo(a)	Pyrene I1	Inracene 23PYR - Inden	o(1.2.3-C.D)Pyr	nzo(b)Huoranth ene	ene		

PAHsfine

Delaware	River	Water	Analysis	(Plume	Monitoring)	
				V. contraction		

SAMP	LE SAMPLE	DESCRIPTION	DBAHANT	B-GHI-PY	2MeNAPH	2FIBP-S	PTERP-S
		Detection Limit (mg/l)	0.00030	0.00030	0.00030		
		Plume Monitoring					See. 10.
Water	80997 80962	Background, dissolved Background, total	0.00030	0.00030	0.00030	56.0% 73.2%	84.1% 85.1%
Water	80998	0-10 min, overflow, dissolved	0.00030	0.00030	0.00030	64.7%	87.3%
Water	80999	10-20 min, overflow, dissolved	0.00030	0.00030	0.00030	83.0%	87.8%
Water	81000	20-30 min, overflow, dissolved	0.00030	0.00030	0.00030	65.1%	81.5%
Water	80963	0-10 min, overflow, total	0.00030	0.00030	0.00030	63.2%	79.3%
Water	80964	10-20 min, overflow, total	0.00030	0.00030	0.00030	63.4%	85.5%
Water	80965	20-30 min, overflow, total	0.00030	0.00030	0.00030	58,7%	88,4%
Water	81001	0-10 min, non-overflow, dissolved	0.00030	0.00030	0.00030	69.4%	84.7%
Water	81002	10-20 min, non-overflow, dissolved	0.00030	0.00030	0.00030	63.4%	87.5%
Water	81003	20-30 min, non-overflow, dissolved	0.00030	0.00030	0.00030	61.6%	85.0%
Water	80966	D-10 min, non-overflow, total	0.00030	0.00030	0.00030	66.5%	91.6%
Water	80967	10-20 min, non-overflow, total	0.00030	0.00030	0.00030	68.1%	88.6%
Water	80968	20-30 min, non-overflow, total	0.00030	0.00030	0.00030	87.1%	90.5%
		Hopper Inflow Monitoring				70.10	05 000
vvater	81124	3& 6 min, dissolved	0.00030	0.00030	0.00030	12.4%	85.9%
Water	81125	9&12 min, dissolved	0.00030	0.00030	0.00030	43.8%	80.7%
vvater	81126	15&18 min, dissolved	0.00030	0.00030	0.00030	01.7%	80.2%
vvater	81127	21&24 min, dissolved	0.00030	0.00030	0.00030	62.9%	00.0%
Water	81128	27&30 min, dissolved	0.00030	0.00030	0.00030	62.0%	83.8%
vvater	80915	38 6 min, total	0.00019	0.00167	0,00029	00,2%	40.0%
vvater	80916	9612 min, total	0.00231	0.00424	0.00008	64.5%	60.4%
Water	80917	21824 min, total	0.00217	0.00197	0.00038	57 0%	51 3%
water	00910	27824 min, total	0.00169	0.00197	0.00033	67.5%	53 604
water	00313	27800 mm, total	0.00100	0.00020	0.00110	07.376	00.074
		Hooper Overflow Monitoring					
Water	81129	28 4 min dissolved	0.00030	0.00030	0.00030	62.8%	83.2%
Water	81130	6& 8 min, dissolved	0.00030	0.00030	0.00030	76.4%	82.0%
Water	81131	10&12 min, dissolved	0.00030	0.00030	0.00030	47.2%	65.7%
Water	81132	14&16 min, dissolved	0.00030	0.00030	0.00030	70.7%	71.0%
Water	81133	18&20 min, dissolved	0.00030	0.00030	0.00030	46.2%	66 7%
Water	80921	28 4 min, total	0.00153	0.00460	0.00073	69.1%	58.1%
Water	80922	6& 8 min, total	0.00204	0.00607	0.00076	67.1%	62.3%
Water	80923	10&12 min, total	0.00175	0.00473	0.00037	41.5%	59.6%
Water	80924	14&16 min, total	0.00165	0.00431	0.00030	36.4%	61.5%
Water	80925	18&20 min, total	0.00240	0 00883	0.00163	66.5%	61.5%
		ma tores.					
Mater	01000	Site Water	0.00020	0.00020	0 00020	50 694	61 0%
vvater	01039	Sample 1 Total	0.00030	0.00030	0.00030	60.2%	67 4%
Water	81640	Sample 3 Total	0.00030	0.00030	0.00030	46 3%	66.8%
		Elutriate					
Water	81645	Sample 1 Dissolved	0.00030	0.00030	0.00030	43,3%	67.8%
Water	81646	Sample 2 Dissolved	0.00030	0.00030	0.00030	83.7%	56.1%
Water	81647	Sample 3 Dissolved	0.00030	0.00030	0.00030	28.2%	58.3%
Water	81642	Sample 1 Total	0.00030	0.00030	0.00030	62.7%	84 0%
Water	81643	Sample 2 Total	0.00030	0.00030	0.00030	56.7%	71.0%
Water	81644	Sample 3 Total	0.00030	0.00030	0.00030	65.9%	/1.2%
CAND	E CAMPLE	DESCRIPTION	ORAHANT	D.CHLDV	MANADH	TEIRD S	PTERD.S
TYPE	ID ID	DESCRIPTION	UDAHANI	Biornier	Sumerace ()	21101-10	TIERING
		Detection Limit (mg/kg)	0 0220	0.0220	0.0220		
		Ingity Codimont					
Sadim	ant 81705	Sample #1	0.0086	0.0748	0.0353	60.3%	48.6%
Sedim	ant 81706	Sample #2	0.0072	0.0605	0.0324	63 0%	49 1%
Sedim	ent 81707	Sample #3	0.0087	0.0647	0.0342	61,2%	51.1%
					an anna a		
DBAH/	ANT - Dibenzo(A,H)Anthracene B-GHI-PY - Ber benyl(Surrogale (43-116 W)) PT	TERP-S - p-Terpl	ne 2MeNA nenvi-D14(Sum	APH - 2-Methylna ogate (33-141 W	iphthalene))	
BOLD	- less than valu	les	e are loss than it	ha reporting for			
Values	below less that	n values are estimated results. Result	s are less than t	ne reporting lim			
				Page	3		

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Pestine

Delaware River Water Analysis (Fine-Grained Site)

Vater 8 Nater 8 Nater 8 Nater 8 Nater 8 Nater 8 Nater 8 Vater 9 Vater	80990 80955 80995 80993 80956 80956 80956 80958 80994 80996 80996 80996 80996	Detection Limit (mg/l) Plume Monitoring Background, dissolved Background, total 0-10 min, overflow, dissolved 10-20 min, overflow, dissolved 0-10 min, overflow, total 10-20 min, overflow, total 0-30 min, oronoverflow, dissolved 0-10 min, non-overflow, dissolved 10-20 min, non-overflow, dissolved 10-20 min, non-overflow, dissolved 10-30 min, non-overflow, dissolved 10-30 min, non-overflow, dissolved	0.000028 0.000025 0.000028 0.000025 0.000025 0.000025 0.000025 0.000025	0.000028 0.000025 0.000028 0.000025 0.000025 0.000025 0.000025 0.000025	0.000028 0.000025 0.000028 0.000025 0.000025 0.000025	0.000028 0.000025 0.000028 0.000025 0.000025	0.000028 0.000025 0.000028 0.000025	0.000050 0.000050 0.000050
Vater 8 Vater 8	80990 80955 80991 80992 80993 80956 80956 80958 80995 80996 80996 80996 80996	Plume Monitoring Background, dissolved Background, total 0-10 min, overflow, dissolved 10-20 min, overflow, dissolved 0-30 min, overflow, total 10-20 min, overflow, total 20-30 min, overflow, total 0-10 min, non-overflow, dissolved 10-20 min, non-overflow, dissolved 10-20 min, non-overflow, dissolved	0.000025 0.000028 0.000025 0.000025 0.000025 0.000025 0.000025	0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025	0.000025 0.000028 0.000025 0.000025 0.000025	0,000025 0.000028 0.000025 0.000025	0.000025 0.000028 0.000025	0.00005
Vater 8 Vater 8	80990 80955 80991 80992 80993 80956 80956 80956 80958 80994 80995 80996 80996 809959 80996	Background, dissolved Background, total 0-10 min, overflow, dissolved 10-20 min, overflow, dissolved 20-30 min, overflow, total 10-20 min, overflow, total 20-30 min, overflow, total 20-30 min, overflow, total 0-10 min, non-overflow, dissolved 10-20 min, non-overflow, dissolved 10-20 min, non-overflow, dissolved	0.000025 0.000028 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025	0.000025 0.000028 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025	0.000025 0.000028 0.000025 0.000025 0.000025	0.000025 0.000028 0.000025 0.000025	0.000025 0.000028 0.000025	0.00005
Vater 8 Nater 8 Nater 8 Nater 8 Vater 8	80955 80991 80993 80956 80957 80958 80958 80994 80995 80996 80996 80959 80960	Background, total 0-10 min, overflow, dissolved 10-20 min, overflow, dissolved 20-30 min, overflow, dissolved 0-10 min, overflow, total 10-20 min, overflow, total 20-30 min, overflow, total 0-10 min, non-overflow, dissolved 10-20 min, non-overflow, dissolved 10-20 min, non-overflow, dissolved	0.000028 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025	0.000028 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025	0.000028 0.000025 0.000025 0.000025	0.000028 0.000025 0.000025	0.000028	0.00005
Vater 8 Vater 8	80991 80992 80956 80956 80957 80958 80958 80994 80995 80996 80996 80960 80960	0-10 min, overflow, dissolved 10-20 min, overflow, dissolved 20-30 min, overflow, dissolved 0-10 min, overflow, total 10-20 min, overflow, total 20-30 min, overflow, total 0-10 min, non-overflow, dissolved 10-20 min, non-overflow, dissolved 20-30 min, non-overflow, dissolved	0.000025 0.000025 0.000025 0.000025 0.000025 0.000025	0.000025 0.000025 0.000025 0.000025 0.000025 0.000025	0.000025 0.000025 0.000025	0.000025 0.000025	0.000025	
Vater 8 Vater 8	80991 80992 80993 80956 80957 80958 80958 80994 80995 80996 80996 80960 80960	0-10 min, overnow, bissolved 10-20 min, overflow, dissolved 20-30 min, overflow, dissolved 0-10 min, overflow, total 20-30 min, overflow, total 0-10 min, non-overflow, dissolved 10-20 min, non-overflow, dissolved 10-20 min, non-overflow, dissolved	0.000025 0.000025 0.000025 0.000025 0.000025 0.000025	0.000025 0.000025 0.000025 0.000025 0.000025 0.000025	0.000025 0.000025 0.000025	0.000025	0.000025	D DOODE
Vater 8 Vater 8	80993 80956 80957 80958 80994 80995 80996 80959 80959 80960 80960	20-30 min, overflow, dissolved 0-10 min, overflow, total 10-20 min, overflow, total 20-30 min, overflow, total 0-10 min, non-overflow, dissolved 10-20 min, non-overflow, dissolved 10-20 min, non-overflow, dissolved	0.000025 0.000025 0.000025 0.000025	0.000025 0.000025 0.000025 0.000025	0.000025	0.000025	0.000025	0.00005
Vater 8 Vater 8	80956 80957 80958 80994 80995 80996 80959 80959 80959 80960	0-10 min, overflow, total 10-20 min, overflow, total 20-30 min, overflow, total 20-30 min, overflow, total 0-10 min, non-overflow, dissolved 10-20 min, non-overflow, dissolved 20-30 min, non-overflow, dissolved	0.000025 0.000025 0.000025	0.000025 0.000025 0.000025	0.000023	0.00025	0.000025	0.00005
Vater 8 Vater 8 Vater 8 Vater 8 Vater 8 Vater 8 Vater 8 Vater 8 Vater 8	80957 80958 80994 80995 80996 80959 80960 80960	10-20 min, overflow, total 20-30 min, overflow, total 0-10 min, non-overflow, dissolved 10-20 min, non-overflow, dissolved 20-30 min, non-overflow, dissolved	0.000025	0.000025	0.000025	0.000025	0.000025	0.00005
Vater 8 Vater 8 Vater 8 Vater 8 Vater 8 Vater 8 Vater 8	80958 80994 80995 80996 80959 80960 80960	20-30 min, overflow, total 0-10 min, non-overflow, dissolved 10-20 min, non-overflow, dissolved 20-30 min, non-overflow, dissolved	0.000025	0.000025	0.000025	0.000025	0.000025	0.00005
Vater 8 Vater 8 Vater 8 Vater 8 Vater 8 Vater 8 Vater 8	80994 80995 80996 80959 80959 80960	0-10 min, non-overflow, dissolved 10-20 min, non-overflow, dissolved 20-30 min, non-overflow, dissolved	0.000025	-12-2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -	0.000025	0.000025	0.000025	0,00005
Vater 8 Vater 8 Vater 8 Vater 8 Vater 8 Vater 8	80995 80996 80959 80960 80961	10-20 min, non-overflow, dissolved 20-30 min, non-overflow, dissolved		0.000025	0.000025	0.000025	0.000025	0 00005
Vater 8 Vater 8 Vater 8 Vater 8	80996 80959 80960 80961	20-30 min non-overflow dissolved	0.000025	0.000025	0.000025	0.000025	0.000025	0.00005
Vater 8 Vater 8 Vater 8	80959 80960	Ed do film, fior dreinon, diddened	0.000025	0.000025	0.000025	0.000025	0.000025	0.00005
Vater 8 Vater 8	80960	0-10 min, non-overflow, total	0.000025	0.000025	0.000025	0.000025	0.000025	0.00005
Vater 8	80061	10-20 min, non-overflow, total	0.000025	0.000025	0.000025	0.000025	0.000025	0.00005
	50301	20-30 min, non-overflow, total	0.000025	0.000025	0.000025	0.000025	0.000025	0.00005
Alatar a	91114	Hopper Inflow Monitoring	0.000025	0.000025	0.000025	0.000025	0.000025	0 00005
Vater 8	81114	9812 min, dissolved	0.000026	0.000026	0.000025	0.000025	0.000028	0.00005
Valer 8	81116	15818 min dissolved	0.000028	0.000028	0.000028	0.000020	0.000025	0.00005
Vater 8	81117	21824 min, dissolved	0.000025	0.000025	0.000025	0.000025	0.000025	0.00005
Vater 8	81118	27&30 min dissolved	0.000025	0.000025	0.000025	0.000025	0.000025	0.00005
Vater 8	80903	3& 6 min, total	0.000016	0.000025	0.000025	0.000025	0.000025	0.00012
Vater 8	80904	9&12 min, total	0.000024	0.000025	0.000025	0,000009	0.000025	0.00016
Vater 8	80905	15&18 min, total	0.000024	0.000027	0.000027	0.000027	0.000027	0.00020
Vater 8	80906	21&24 min, total	0.000022	0.000027	0.000027	0.000014	0.000027	0.00013
Vater 8	80907	27&30 min, total	0.000026	0.000025	0.000025	0.000025	0.000025	0.00013
		United and the United and						
		Hopper Overflow Monitoring	0.000000	0.000000	0.000000	0.000000	0.000000	0.00005
Vater 8	91119	2& 4 min, dissolved	0.000026	0.000026	0.000026	0.000026	0.000026	0.00005
Valer 8	81120	10812 min dissolved	0.000025	0.000025	0.000025	0.000025	0.000025	0.00005
Vater 8	81122	14&16 min, dissolved	0.000025	0.000025	0.000025	0.000025	0.000025	0.00005
Vater 8	81123	18&20 min, dissolved	0.000024	0.000024	0.000024	0.000024	0.000024	0.00004
Vater 8	80909	2& 4 min, total	0.000030	0.000027	0.000027	0.000010	0.000027	0.00074
Vater 8	80910	6& 8 min, total	0.000045	0.000027	0.000027	0.000027	0.000027	0.00030
Vater 8	80911	10&12 min, total	Broken	Broken	Broken	Broken	Broken	Broke
Vater 8	80912	14&16 min, total	0.000062	0.000025	0.000025	0,000015	0.000025	0.00054
Vater 8	80913	18&20 min, total	0.000043	0.000027	0.000027	0.000027	0.000027	0.00032
		Site Water						
Nater 8	81621	Sample 1 Total	0.000025	0.000025	0.000025	0.000017	0.000025	0.00005
Vater 8	81622	Sample 2 Total	0.000025	0.000025	0.000025	0.000025	0.000025	0,00005
Vater 8	81623	Sample 3 Total	0.000025	0.000025	0.000025	0.000025	0.000025	0.00005
Nater 8	81627	Elutriate Sample 1 Dissolved	0 000050	0.000050	0.000050	0.000050	0.000050	0.00010
Vater 8	31628	Sample 2 Dissolved	0.000050	0.000050	0.000050	0.000050	0.000050	0.00010
Vater 8	31629	Sample 3 Dissolved	0.000050	0.000050	0.000050	0.000050	0.000050	0.00010
Vater 8	31624	Sample 1 Total	0.000025	0.000025	0.000025	0.000025	0.000025	0.00005
Vater 8	81625	Sample 2 Total	0.000025	0.000025	0.000025	0.000025	0.000025	0.00001
Vater 8	31626	Sample 3 Total	0.000025	0.000025	0.000025	0.000025	0.000025	0.00001
	PANDLE	DESCRIPTION		A-BHC	B.BHC	G.BHC	D.BHC	PPDD
MMPLE 5	SAMPLE	DESCRIPTION	ALUMIN	0.0010	0-0110	0.0010	D-Drid	
		Detection Limit (mg/kg)	0.0018	0.0018	0.00096	0.0018	0,0018	0.004
Codiment P	01711	Insitu Sediment	0.0018	0.0018	0.00067	0.0018	0.0018	0.006
Sediment 8	81712	Sample #7	0.0018	0.0018	0.00062	0.0018	0.0018	0 005
Sediment 8	81713	Sample #3	0.0018	0.0018	0 00092	0.0018	0.0018	0.021
			A					
ALDRIN - Ald	drin than value	A-BHC - A-BHC B-BHC - B-BHC	G-BHC - G-B	HC D-BHC-	D-BHG PPD	UU - PPODD		
/alues below	v less than	values are estimated results. Results	are less than the re	porting limit.				

Pestfine

Delaware River Water Analysis (Fine-Grained Site)

		and the second se	FFODE	PPOUI	HEICL	DIELDRIN	ENDOI	END
		Detection Limit (mg/l)	0.000055	0.000055	0.0000280	0.000055	0.000028	0.0000
		Plume Monitoring						
Water Water	80990 80955	Background, dissolved Background, total	0.000050	0.000050	0,0000250	0.000050	0.000025	0.0000
. aren	00000					0.0000		
Nater	80991	0-10 min, overflow, dissolved	0.000050	0.000050	0.0000250	0.000050	0.000025	0.0000
Nater	80992	10-20 min, overflow, dissolved	0.000050	0.000050	0.0000250	0.000050	0.000025	0.0000
Water	80993	20-30 min, overflow, dissolved	0.000050	0.000050	0,0000250	0.000050	0.000025	0.0000
Vater	80956	0-10 min, overflow, total	0.000050	0.000050	0.0000250	0.000050	0.000025	0.000
Vater Vater	80957	20-30 min, overflow, total	0.000050	0.000050	0.0000250	0.000050	0.000025	0.000
Mater	20004	0.10 min non-overflow discolved	0.000050	0.000050	0.0000250	0.000050	0.000025	0.000
Natar	80005	10-20 min, non-overflow, dissolved	0.000050	0.000050	0.0000250	0.000050	0.000025	0.000
Vater	80996	20-30 min non-overflow dissolved	0.000050	0.000050	0.0000250	0.000050	0.000025	0.000
Valer	80959	0-10 min, non-overflow total	0.000050	0.000050	0.0000250	0.000050	0.000025	0.000
Vater	80960	10-20 min, non-overflow, total	0.000050	0.000050	0.0000250	0.000050	0.000025	0.000
Vater	80961	20-30 min, non-overflow, total	0.000050	0.000050	0.0000250	0,000050	0.000025	0.000
Vater	81114	Hopper Inflow Monitoring 38, 6 min, dissolved	0.000050	0.000050	0.0000250	0.000050	0.000025	0.000
Vater	81115	9812 min, dissolved	0.000052	0.000052	0.0000260	0.000052	0.000026	0.000
Vater	81116	15&18 min, dissolved	0.000054	0,000054	0.0000270	0.000054	0.000027	0.000
Vater	81117	21&24 min, dissolved	0.000050	0.000050	0.0000250	0.000050	0.000025	0.000
Vater	81118	27&30 min, dissolved	0.000050	0.000050	0.0000250	0.000050	0.000025	0.000
Vater	80903	3& 6 min, total	0.000079	0.000050	0.0000250	0.000050	0.000025	0.000
Vater	80904	9&12 min, total	0.000110	0 000082	0.0000130	0.000050	0.000029	0.000
Vater	80905	15&18 min, total	0.000150	0.000050	0.0000130	0.000053	0.000033	0.000
Vater	80906	21&24 min, total	0.000120	0.000075	0.0000207	0,000053	0.000032	0.000
Vater	80907	27&30 min, total	0.000110	0,000068	0,0000290	0.000050	0.000032	0.000
		Lisseer Querflow Medilering						
Votor	91110	28 A min dissolved	0.000052	0.000052	0.0000260	0.000052	0.000026	0 000
Valer	81120	68. 8 min dissolved	0.000052	0.000066	0.0000250	0.000050	0.000025	0.000
Vater	81121	10812 min dissolved	0.000050	0.000069	0.0000250	0.000050	0.000025	0.000
Vater	81122	14&16 min, dissolved	0.000050	0.000065	0.0000250	0.000050	0.000025	0.000
Vater	81123	18&20 min, dissolved	0.000049	0.000049	0.0000240	0.000049	0.000024	0.000
Vater	80909	28, 4 min, total	0.000190	0.000110	0.0000170	0.000053	0.000017	0.000
Vater	80910	6& 8 min, total	0,000180	0.000360	0.0000270	0.000053	0.000050	0.000
Vater	80911	10&12 min, total	Broken	Broken	Broken	Broken	Broken	Bro
Vater	80912	14&16 min, total	0.000470	0.000340	0.0000280	0.000050	0 000033	0.000
Vater	80913	18&20 min, total	0,000300	0.000140	0.0000270	0.000053	0.000020	0.000
		Site Mater						
Mator	81621	Sample 1 Total	0.000050	0.000050	0.0000037	0.000050	0.000025	0.000
Vater	81622	Sample 7 Total	0.000050	0.000050	0.0000340	0.000050	0.000025	0.000
Vater	81623	Sample 3 Total	0.000050	0.000050	0.0000370	0.000050	0.000025	0.000
Vater	81627	Elutriate Sample 1 Dissolved	0.000100	0.000100	0.0000170	0.000100	0.000050	0.000
Vater	81628	Sample 2 Dissolved	0.000100	0.000100	0.0000180	0.000100	0.000050	0.000
Vater	81629	Sample 3 Dissolved	0.000100	0.000100	0.0000290	0.000100	0.000050	0.000
Vater	81624	Sample 1 Total	0.000050	0.000050	0.0000130	0.000050	0.000025	0.000
Vater	81625	Sample 2 Total	0.000050	0.000050	0.0000350	0.000050	0.000025	0.000
Vater	81626	Sample 3 Total	0.000050	0.000050	0.0000330	0.000050	0.000025	0.000
AMPLE	SAMPLE	DESCRIPTION	PPDDE	PPDDT	HPTCL	DIELDRIN	ENDO	ENE
		Detection Limit (ma/ka)	0.0019	0.0019	0 00096	0 0036	0 00096	0.0
		Inciti) Sodimont						
ontimont	81711	Sample #1	0.0061	0.0120	0.00058	0.0036	0.0030	0.0
Sediment	81712	Sample #2	0 0110	0.0059	0 00038	0.0036	0.0030	0.0
Sediment	81713	Sample #3	0.0075	0.0120	0.00051	0.0036	0 0030	0,0
	PODE		ables DICLC)II. B.Endonullar	
DDDC C	s than value	S		noting lent	Chicket - Archuc	LINCK	an of children of the	
PPDDE - F BOLD - les	ow less than	values are estimated results. Results a	are less than the re	porting limit.				
PDDE - P IOLD - les /alues belo								
PDDE - F OLD - les alues belo								
PDDE - F BOLD - les falues belo				Page 2				

Water 800 Water 803 Water </th <th>0990 0955 0991 0993 0993 0956 0995 0996 0995 0996 0959 0959 0959</th> <th>Detection Limit (mg/l) Plume Monitoring Background, dissolved Background, dissolved Background, total 0-10 min, overflow, dissolved 20-30 min, overflow, dissolved 20-30 min, overflow, total 10-20 min, overflow, total 20-30 min, one-overflow, dissolved 10-20 min, non-overflow, dissolved 20-30 min, non-overflow, dissolved 20-30 min, non-overflow, dissolved 20-30 min, non-overflow, dissolved 20-30 min, non-overflow, total 20-30 min, dissolved 3& 6 min, dissolved 21&24 min, dissolved 21&24 min, dissolved 23&30 min, total 23&30 min, total 23&20 min, total</th> <th>0.000055 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050</th> <th>0.000050 0.00050 0.00010 0.00050 0.00050 0.00010 0.000000 0.000000 0.000000 0.000000 0.000000</th> <th>0 000055 0,000050 0,000050 0,000050 0,000050 0,000050 0,000050 0,000050 0,000050 0,000050 0,000050 0,000050 0,000050 0,000050 0,000050</th> <th>0.000028 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025</th> <th>0 00028 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025</th> <th>0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002</th>	0990 0955 0991 0993 0993 0956 0995 0996 0995 0996 0959 0959 0959	Detection Limit (mg/l) Plume Monitoring Background, dissolved Background, dissolved Background, total 0-10 min, overflow, dissolved 20-30 min, overflow, dissolved 20-30 min, overflow, total 10-20 min, overflow, total 20-30 min, one-overflow, dissolved 10-20 min, non-overflow, dissolved 20-30 min, non-overflow, dissolved 20-30 min, non-overflow, dissolved 20-30 min, non-overflow, dissolved 20-30 min, non-overflow, total 20-30 min, dissolved 3& 6 min, dissolved 21&24 min, dissolved 21&24 min, dissolved 23&30 min, total 23&30 min, total 23&20 min, total	0.000055 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050	0.000050 0.00050 0.00010 0.00050 0.00050 0.00010 0.000000 0.000000 0.000000 0.000000 0.000000	0 000055 0,000050 0,000050 0,000050 0,000050 0,000050 0,000050 0,000050 0,000050 0,000050 0,000050 0,000050 0,000050 0,000050 0,000050	0.000028 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025	0 00028 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025	0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002
Vater B00 Vater B02 Vater B03 Vater B04 Vater B04 Vater B04 Vater B11 Vater B11 Vater B11 Vater B11 Vater B11 Vater B12 Vater B05 Vater B11 Vater </th <th>0990 0955 0991 0992 0992 0993 0957 0957 0958 0994 0995 0996 0996 0960 0960 0960 0961 1114 1115 1116 0905 0960 0961 1117 1118 003 0904 0905 0906 0905</th> <th>Plume Monitoring Background, dissolved Background, total 0-10 min, overflow, dissolved 10-20 min, overflow, dissolved 20-30 min, overflow, total 10-20 min, overflow, total 20-30 min, non-overflow, dissolved 20-30 min, non-overflow, dissolved 20-30 min, non-overflow, dissolved 20-30 min, non-overflow, total 20-30 min, non-overflow, total 21-24 min, dissolved 21-824 min, dissolved 21-824 min, total 28-86 min, total 21-824 min, total 21-824 min, total 21-824 min, total 21-824 min, total</th> <th>0.000050 0.000055 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000052 0.000050 0.000050 0.000050 0.000050</th> <th>0.000050 0.000110 0.000050 0.000050 0.000120 0.000120 0.000100 0.000100 0.000100 0.000100 0.000100 0.000100 0.000100 0.000100 0.000100 0.000081 0.000081 0.000081 0.000081</th> <th>0.000050 0.000055 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050</th> <th>0.000025 0.000028 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025</th> <th>0.00025 0.00028 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025</th> <th>0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002</th>	0990 0955 0991 0992 0992 0993 0957 0957 0958 0994 0995 0996 0996 0960 0960 0960 0961 1114 1115 1116 0905 0960 0961 1117 1118 003 0904 0905 0906 0905	Plume Monitoring Background, dissolved Background, total 0-10 min, overflow, dissolved 10-20 min, overflow, dissolved 20-30 min, overflow, total 10-20 min, overflow, total 20-30 min, non-overflow, dissolved 20-30 min, non-overflow, dissolved 20-30 min, non-overflow, dissolved 20-30 min, non-overflow, total 20-30 min, non-overflow, total 21-24 min, dissolved 21-824 min, dissolved 21-824 min, total 28-86 min, total 21-824 min, total 21-824 min, total 21-824 min, total 21-824 min, total	0.000050 0.000055 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000052 0.000050 0.000050 0.000050 0.000050	0.000050 0.000110 0.000050 0.000050 0.000120 0.000120 0.000100 0.000100 0.000100 0.000100 0.000100 0.000100 0.000100 0.000100 0.000100 0.000081 0.000081 0.000081 0.000081	0.000050 0.000055 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050	0.000025 0.000028 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025	0.00025 0.00028 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025	0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002
Vater B03 Vater B04 Vater B05 Vater B04 Vater B04 Vater B11 Vater B11 Vater B12 Vater B05 Vater B11 Vater </td <td>0990 0955 0991 0992 0992 0993 0957 0957 0957 0958 0994 0995 0996 0996 0960 0960 0960 0961 1114 1115 1116 0906 0980 0996 0980 0996 0996 0996 099</td> <td>Background, dissolved Background, total 0-10 min, overflow, dissolved 20-30 min, overflow, dissolved 20-30 min, overflow, dissolved 20-30 min, overflow, total 20-30 min, overflow, total 20-30 min, non-overflow, dissolved 20-30 min, non-overflow, dissolved 20-30 min, non-overflow, dissolved 20-30 min, non-overflow, total 20-30 min, dissolved 21824 min, dissolved 21824 min, dissolved 238.6 min, total 2812 min, total 2812 min, total 21824 min, total 21824 min, total 21824 min, total</td> <td>0.000050 0.000055 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000052 0.000052 0.000054 0.000050 0.000050 0.000050</td> <td>0.000650 0.000110 0.000050 0.000050 0.000050 0.000120 0.000120 0.000120 0.000100 0.000100 0.000100 0.000100 0.000100 0.000100 0.000100 0.000100 0.000100 0.000081 0.000081 0.000081 0.000081</td> <td>0.000050 0.000055 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050</td> <td>0.00025 0.00028 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025</td> <td>0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025</td> <td>0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002</td>	0990 0955 0991 0992 0992 0993 0957 0957 0957 0958 0994 0995 0996 0996 0960 0960 0960 0961 1114 1115 1116 0906 0980 0996 0980 0996 0996 0996 099	Background, dissolved Background, total 0-10 min, overflow, dissolved 20-30 min, overflow, dissolved 20-30 min, overflow, dissolved 20-30 min, overflow, total 20-30 min, overflow, total 20-30 min, non-overflow, dissolved 20-30 min, non-overflow, dissolved 20-30 min, non-overflow, dissolved 20-30 min, non-overflow, total 20-30 min, dissolved 21824 min, dissolved 21824 min, dissolved 238.6 min, total 2812 min, total 2812 min, total 21824 min, total 21824 min, total 21824 min, total	0.000050 0.000055 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000052 0.000052 0.000054 0.000050 0.000050 0.000050	0.000650 0.000110 0.000050 0.000050 0.000050 0.000120 0.000120 0.000120 0.000100 0.000100 0.000100 0.000100 0.000100 0.000100 0.000100 0.000100 0.000100 0.000081 0.000081 0.000081 0.000081	0.000050 0.000055 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050	0.00025 0.00028 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025	0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025	0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002
Vater B03 Vater B04 Vater B03 Vater B11 Vater B11 Vater B11 Vater B11 Vater B11 Vater B12 Vater B03 Vater B05 Vater B12 Vater B12 Vater B12 Vater B12 Vater B12 Vater B12 Vater </td <td>0991 0992 0983 0983 0985 0985 0985 0985 0994 0985 0985 0986 0985 0986 0985 0986 0985 0986 0985 0986 0985 0986 0985 0986 0985 0986 0985 0986 0985 0985 0985 0985 0985 0985 0985 0985</td> <td>0-10 min, overflow, dissolved 10-20 min, overflow, dissolved 20-30 min, overflow, dissolved 0-10 min, overflow, total 10-20 min, overflow, total 20-30 min, overflow, total 20-30 min, non-overflow, dissolved 20-30 min, non-overflow, dissolved 20-30 min, non-overflow, dissolved 20-30 min, non-overflow, total 20-30 min, dissolved 3& 6 min, dissolved 21&24 min, dissolved 21&24 min, dissolved 23&6 min, total 24&21 min, total 24&21 min, total 24&24 min, total 24&24 min, total 24&24 min, total 24&24 min, total</td> <td>0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000052 0.000052 0.000050 0.000050 0.000050</td> <td>0.000050 0.000050 0.000100 0.000100 0.000100 0.000100 0.000100 0.000100 0.000100 0.000100 0.000100 0.000100 0.000100 0.000100 0.000081 0.000081 0.000081 0.000081</td> <td>0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050</td> <td>0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025</td> <td>0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025</td> <td>0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002</td>	0991 0992 0983 0983 0985 0985 0985 0985 0994 0985 0985 0986 0985 0986 0985 0986 0985 0986 0985 0986 0985 0986 0985 0986 0985 0986 0985 0986 0985 0985 0985 0985 0985 0985 0985 0985	0-10 min, overflow, dissolved 10-20 min, overflow, dissolved 20-30 min, overflow, dissolved 0-10 min, overflow, total 10-20 min, overflow, total 20-30 min, overflow, total 20-30 min, non-overflow, dissolved 20-30 min, non-overflow, dissolved 20-30 min, non-overflow, dissolved 20-30 min, non-overflow, total 20-30 min, dissolved 3& 6 min, dissolved 21&24 min, dissolved 21&24 min, dissolved 23&6 min, total 24&21 min, total 24&21 min, total 24&24 min, total 24&24 min, total 24&24 min, total 24&24 min, total	0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000052 0.000052 0.000050 0.000050 0.000050	0.000050 0.000050 0.000100 0.000100 0.000100 0.000100 0.000100 0.000100 0.000100 0.000100 0.000100 0.000100 0.000100 0.000100 0.000081 0.000081 0.000081 0.000081	0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050	0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025	0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025	0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002
Vater 803 Vater 805 Vater 805 Vater 805 Vater 805 Vater 805 Vater 805 Vater 805 Vater 805 Vater 811 Vater 811 Vater 811 Vater 815 Vater 805 Vater 811 Vater 811	0992 0993 0956 0957 0958 0994 0995 0996 0996 0959 0960 0961 11115 11116 11115 11116 11115 11116 0903 0905 0905 0906 0906	10-20 min, overflow, dissolved 20-30 min, overflow, dissolved 0-10 min, overflow, total 10-20 min, overflow, total 20-30 min, overflow, total 20-30 min, non-overflow, dissolved 20-30 min, non-overflow, dissolved 20-30 min, non-overflow, dissolved 20-30 min, non-overflow, total 20-30 min, dissolved 3& 6 min, dissolved 21&24 min, dissolved 21&24 min, dissolved 27&30 min, total 28.12 min, total 21&21 min, total 21&24 min, total 21&24 min, total 21&24 min, total 21&24 min, total 21&24 min, total	0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000052 0.000052 0.000054 0.000055 0.000055	0.000050 0.000050 0.000120 0.000120 0.000120 0.000100 0.000100 0.000100 0.000100 0.000120 0.000120 0.000130 0.000081 0.000081 0.000081 0.000060 0.000081	0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050	0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025	0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025	0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002
Vater 805 Vater 805 Vater 805 Vater 805 Vater 805 Vater 805 Vater 805 Vater 805 Vater 811 Vater 811 Vater 811 Vater 812 Vater 805 Vater 805 Vater 805 Vater 805 Vater 811 Vater 811 Vater 811	0393 03956 03957 03958 03995 03995 03995 03995 03996 03960 03961 11115 11115 11115 11115 11116 11117 11118 03903 03905 03905 03905 03905	20-30 min, overflow, total 0-10 min, overflow, total 10-20 min, overflow, total 20-30 min, overflow, total 20-30 min, non-overflow, dissolved 10-20 min, non-overflow, dissolved 20-30 min, non-overflow, total 20-30 min, non-overflow, total 20-30 min, non-overflow, total 20-30 min, non-overflow, total 20-30 min, dissolved 21824 min, dissolved 21824 min, dissolved 21824 min, dissolved 21824 min, total 2826 min, total 21824 min, total 21824 min, total 21824 min, total 21824 min, total	0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050	0.000110 0.000110 0.000100 0.000100 0.000110 0.000110 0.000110 0.000120 0.000120 0.000120 0.000120 0.000120 0.000081 0.000081 0.000081	0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050	0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025	0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025	0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002
Vater 803 Vater 811 Vater 811 Vater 803 Vater 805 Vater 811	0957 0958 0994 0995 0996 0959 0960 0960 0961 1114 1115 1116 1117 1118 0904 0905 0905 0906 0905	10-20 min, overflow, total 20-30 min, overflow, total 0-10 min, non-overflow, dissolved 10-20 min, non-overflow, dissolved 20-30 min, non-overflow, dissolved 20-30 min, non-overflow, total 20-30 min, non-overflow, total Hopper Inflow Monitoring 3& 6 min, dissolved 9&12 min, dissolved 21&24 min, dissolved 21&24 min, dissolved 21&24 min, total 9&12 min, total 15&18 min, total 15&18 min, total 21&24 min, total 21&24 min, total	0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000052 0.000052 0.000052 0.000050 0.000050 0.000050	0 000120 0 000120 0 000100 0 000110 0 000100 0 000120 0 000120 0 000120 0 000081 0 000081 0 000081 0 000081	0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000052 0.000052	0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025	0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025	0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002
Vater 805 Vater 811 Vater 811 Vater 811 Vater 811 Vater 805 Vater 805 Vater 805 Vater 805 Vater 805 Vater 805 Vater 811 Vater 805 Vater 805 Vater 811	0958 0994 0995 0959 0959 0960 0961 1114 1115 1116 1117 1118 0903 0905 0905 0906 0906	20-30 min, overflow, total 0-10 min, non-overflow, dissolved 10-20 min, non-overflow, dissolved 20-30 min, non-overflow, total 10-20 min, non-overflow, total 20-30 min, non-overflow, total 20-30 min, non-overflow, total Hopper inflow Monitoring 3& 6 min, dissolved 9&12 min, dissolved 15&18 min, dissolved 21&24 min, dissolved 21&24 min, dissolved 23& 6 min, total 9&12 min, total 23&24 min, total 23&24 min, total 23&24 min, total 23&24 min, total	0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000052 0.000052 0.000052 0.000050 0.000050 0.000050	0 000100 0.000100 0.000110 0.000100 0.000120 0.000120 0.000120 0.000061 0.000061 0.000061 0.000061	0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000052 0.000052	0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025	0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025	0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002
Vater 800 Vater 801 Vater 811 Vater 811 Vater 811 Vater 811 Vater 811 Vater 802 Vater 803 Vater 811 Vater 811 Vater 811 Vater 811 Vater 811	0994 0995 0996 0959 0960 0961 1114 1115 1116 1117 1118 0903 0904 0905 0906 0907	0-10 min, non-overflow, dissolved 10-20 min, non-overflow, dissolved 20-30 min, non-overflow, dissolved 20-10 min, non-overflow, total 10-20 min, non-overflow, total 20-30 min, non-overflow, total 20-30 min, non-overflow, total 20-31 min, dissolved 38.6 min, dissolved 218.24 min, dissolved 218.24 min, dissolved 218.24 min, dissolved 38.6 min, total 218.12 min, total 218.24 min, total 218.24 min, total 218.24 min, total	0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000052 0.000052 0.000054 0.000055 0.000050 0.000050	0.000050 0.000110 0.000100 0.000120 0.000120 0.000120 0.000061 0.000061 0.000061 0.000061	0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000052 0.000052	0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025	0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025	0.00002 0.00002 0.00002 0.00002 0.00002 0.00002
Vater 800 Vater 800 Vater 800 Vater 800 Vater 800 Vater 811 Vater 811 Vater 811 Vater 811 Vater 800 Vater 800 Vater 800 Vater 800 Vater 811 Vater 811 Vater 811 Vater 811	2995 2996 2959 2960 2961 11114 1115 1116 1117 1118 2903 2904 2905 2906 2907	10-20 min, non-overflow, dissolved 20-30 min, non-overflow, dissolved 20-10 min, non-overflow, dotal 10-20 min, non-overflow, total 20-30 min, non-overflow, total 20-30 min, non-overflow, total 30-30 min, non-overflow, total 30-30 min, dissolved 38.12 min, dissolved 218.24 min, dissolved 278.30 min, dissolved 278.30 min, dissolved 38.6 min, total 39.812 min, total 218.24 min, total 218.24 min, total 218.24 min, total	0.000050 0.000050 0.000050 0.000050 0.000050 0.000052 0.000052 0.000052 0.000050 0.000050 0.000050	0.000110 0.000100 0.000120 0.000120 0.000130 0.000081 0.000081 0.000081 0.000081	0.000050 0.000050 0.000050 0.000050 0.000050 0.000050 0.000052 0.000052	0.000025 0.000025 0.000025 0.000025 0.000025 0.000025 0.000025	0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025	0.00002 0.00002 0.00002 0.00002 0.00002 0.00002
Vater 800 Vater 800 Vater 800 Vater 800 Vater 811 Vater 811 Vater 811 Vater 811 Vater 800 Vater 800 Vater 800 Vater 800 Vater 811 Vater 811 Vater 811	0996 0959 0960 0961 1114 1115 1116 1117 1118 0903 0904 0905 0906 0907	20-30 mm, non-overlow, dissolved 0-10 mm, non-overlow, total 10-20 min, non-overlow, total 20-30 min, non-overlow, total 20-30 min, non-overlow, total 20-30 min, dissolved 3& 6 min, dissolved 21&24 min, dissolved 27&30 min, dissolved 27&30 min, dissolved 3& 6 min, total 9&12 min, total 21&24 min, total 21&24 min, total 21&24 min, total	0.000050 0.000050 0.000050 0.000050 0.000052 0.000052 0.000054 0.000050 0.000050 0.000050	0.000110 0.000100 0.000120 0.000130 0.000081 0.000061 0.000061 0.000069	0.000050 0.000050 0.000050 0.000050 0.000050 0.000052 0.000054	0.000025 0.000025 0.000025 0.000025 0.000025 0.000025	0.00025 0.00025 0.00025 0.00025 0.00025 0.00025	0.00002 0.00002 0.00002 0.00002 0.00002
Vater 800 Vater 800 Vater 800 Vater 811 Vater 811 Vater 811 Vater 800 Vater 800 Vater 800 Vater 800 Vater 800 Vater 811 Vater 811 Vater 811	0000 0000 0000 0000 0000 0000 0000 0000 0000	10-20 min, non-overflow, total 10-20 min, non-overflow, total 20-30 min, non-overflow, total Hopper Inflow Monitoring 3& 6 min, dissolved 218.24 min, dissolved 218.24 min, dissolved 278.30 min, total 9&12 min, total 158.18 min, total 218.24 min, total 218.24 min, total 218.24 min, total	0.000050 0.000050 0.000050 0.000052 0.000052 0.000050 0.000050 0.000050 0.000050	0.000120 0.000130 0.000081 0.000061 0.000061 0.000069	0.000050 0.000050 0.000050 0.000050 0.000052 0.000054	0.000025 0.000025 0.000025 0.000025 0.000025	0.00025 0.00025 0.00025 0.00025 0.00025	0.00002 0.00002 0.00002 0.00002
Vater B11 Vater B11 Vater B11 Vater B11 Vater B11 Vater B11 Vater B12 Vater B02 Vater B03 Vater B04 Vater B03 Vater B04 Vater B11 Vater B11 Vater B11	1114 1115 1115 1116 1117 1118 0903 0904 0905 0906 0907	20-30 min, non-overflow, total Hopper Inflow Monitoring 3& 6 min, dissolved 9&12 min, dissolved 15&18 min, dissolved 21&24 min, dissolved 27&30 min, dissolved 3& 6 min, total 9&12 min, total 25&18 min, total 21&24 min, total	0.000050 0.000052 0.000054 0.000050 0.000050 0.000050 0.000050	0.000130 0.000081 0.000061 0.000060 0.000081 0.000069	0.000050 0.000050 0.000052 0.000054	0.000025	0.00025 0.00025 0.00026	0.00002
Vater 811 Vater 811 Vater 811 Vater 811 Vater 800 Vater 800 Vater 800 Vater 800 Vater 800 Vater 811 Vater 811 Vater 811 Vater 811	1114 1115 1116 1117 1118 0903 0904 0905 0906 0907	Hopper Inflow Monitoring 3& 6 min, dissolved 9&12 min, dissolved 15&18 min, dissolved 21&24 min, dissolved 27&30 min, dissolved 3& 6 min, total 9&12 min, total 15&18 min, total 21&24 min, total	0.000050 0.000052 0.000054 0.000050 0.000050 0.000022 0.000022	0.000081 0.000061 0.000060 0.000081 0.000059	0.000050 0.000052 0.000054	0.000025	0.00025	0.00002
Vater B1 Vater B0 Vater B1 Vater B1 Vater B1 Vater B1 Vater B1	1114 1115 1116 1117 1118 0903 0904 0905 0906 0907	3& 6 min, dissolved 9&12 min, dissolved 15&18 min, dissolved 21&24 min, dissolved 27&30 min, dissolved 3& 6 min, total 9&12 min, total 15&18 min, total 21&24 min, total	0.000050 0.000052 0.000054 0.000050 0.000050 0.000050 0.000022 0.000050	0.000081 0.000061 0.000060 0.000081 0.000069	0.000050 0.000052 0.000054	0.000025	0.00025	0.00002
Vater 811 Vater 811 Vater 811 Vater 811 Vater 802 Vater 802 Vater 802 Vater 802 Vater 802 Vater 802 Vater 803 Vater 811	1115 1116 1117 1118 0903 0904 0905 0906 0907	98.12 min, dissolved 158.18 min, dissolved 218.24 min, dissolved 278.30 min, dissolved 38.6 min, total 98.12 min, total 158.18 min, total 218.24 min, total	0.000052 0.000054 0.000050 0.000050 0.000050 0.000022 0.000050	0.000061 0.000060 0.000081 0.000069	0.000052 0.000054	0.000026	0.00026	0.00002
Vater 811 Vater 811 Vater 805 Vater 805 Vater 805 Vater 805 Vater 805 Vater 811 Vater 811 Vater 811	1117 1118 0903 0904 0905 0906 0907	278.24 min, dissolved 278.30 min, dissolved 278.30 min, dissolved 38. 6 min, total 98.12 min, total 158.18 min, total 278.24 min, total	0.000054 0.000050 0.000050 0.000022 0.000050	0.000081	0.000054	11 11 11 11 11 12 2	0.0000	0.00002
Vater 811 Vater 802 Vater 802 Vater 802 Vater 802 Vater 802 Vater 811 Vater 811 Vater 811	1118 0903 0904 0905 0906 0907	27&30 min, dissolved 3& 6 min, total 9&12 min, total 15&18 min, total 27&20 min, total	0.000050	0.000069	0 000050	0.000027	0.00027	0.00002
Vater 805 Vater 805 Vater 805 Vater 805 Vater 805 Vater 811 Vater 811	0903 0904 0905 0906 0907	38 6 min, total 9812 min, total 15818 min, total 27824 min, total	0.000022		0.000050	0.000025	0.00025	0.00002
Vater 805 Vater 805 Vater 805 Vater 805 Vater 811 Vater 811 Vater 811	0904 0905 0906 0907	9&12 min, total 15&18 min, total 21&24 min, total	0.000050	0.000050	0.000050	0.000013	0.00025	
Vater 805 Vater 805 Vater 805 Vater 811 Vater 811 Vater 811	0905 0906 0907	21&24 min, total	0.000047	0.000050	0.000050	0.000025	0.00025	
Vater 805 Vater 811 Vater 811 Vater 811	0907	17230 min total	0.000047	0.000053	0,000053	0.000027	0.00027	
Vater 811 Vater 811 Vater 811		2/ x30 min, total	0.000050	0.000050	0.000050	0.000025	0.00025	
Vater 811 Vater 811 Vater 811		Honner Overflow Monitoring						
Vater 811 Vater 811	1119	2& 4 min, dissolved	0.000052	0.000095	0,000052	0.000026	0.00026	0.00002
Vater 811	1120	6& 8 min, dissolved	0.000050	0 000079	0.000050	0.000025	0.00025	0.00002
	1121	10&12 min, dissolved	0.000050	0.000085	0.000050	0.000025	0.00025	0.00002
Vater 81	1122	18820 min, dissolved	0.000050	0.000063	0.000050	0.000025	0.00025	0.00002
Vater 809	0909	28 4 min, total	0.000053	0.000053	0.000053	0.000014	0.00027	0.00002
Vater 809	0910	6& 8 min, total	0.000053	0.000053	0,000053	0.000027	0.00027	
Valer 809	0911	10&12 min, total	Broken	Broken	Broken	Broken	Broken	
Vater 809 Vater 809	0912 0913	18&20 min, total	0.000053	0.000053	0.000053	0.000020	0.00025	
		Che Water						
Vater 816	1621	Sample 1 Total	0.000050	0.000050	0.000050	0.000025	0.00025	
Vater 816	1622	Sample 2 Total	0.000050	0.000050	0.000050	0.000025	0.00025	
Vater 816	1623	Sample 3 Total	0.000050	0.000050	0.000050	0.000025	0.00025	
		Elutriate						
Vater 816	1627	Sample 1 Dissolved	0.000100	0.000100	0.000100	0.000050	0.00050	
Vater 816	1629	Sample 3 Dissolved	0.000100	0.000100	0.000100	0.000050	0.00050	
Vater 816	1624	Sample 1 Total	0.000050	0.000050	0.000050	0.000025	0.00025	
Vater 816 Vater 816	1625 1626	Sample 2 Total Sample 3 Total	0.000050	0.000050	0.000050	0.000025	0.00025	
AMPLE SA	AMPLE	DESCRIPTION	ENDOSU	ENDRIN	ENDALD	HPTCLE	METOXYCL	
YPE ID)	Part and then be started	0.0000	0.0026	0.0026	0.0010	0.019	
		Institu Sediment	0.0030	0.0036	0.0036	0.0018	0.018	
ediment 817	1711	Sample #1	0.0036	0.0036	0.0036	0.0018	0.018	
ediment 817	1712	Sample #2	0.0019	0.0036	0.0036	0.0018	0.018	
ediment 817	1713	Sample #3	0.0036	0.0036	0.0036	0.0018	0.018	
NDOSU - End LORDANE - O OLD - less tha	ndosulfan Chlordan han valuer	sulfate ENDRIN - Endrin le s	ENDALD - Endrin Al	ldehyde H	IPTCLE - Heptachlor E	poxide ME	TOXYCL - Methox	yahlor
aldes delow le	ାଟ୍ଟର (ମଶ୍ରମ	volues are estimated results. Result	a are icaa man me le	bound mur				

Pestfine

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Pestfine

Delaware River Water Analysis (Fine-Grained Site)

SAMPLE	SAMPLE	DESCRIPTION	TOXAPHEN	TCLXYL-S	DCLBP	a-CHLORD	g-CHLORD	
		Detection Limit (mg/l)	0.00028			0.000025	0.000025	
		Diverse Marsharing						
Water	80090	Plume Monitoring Background, dissolved	0.00025	83.00%	92 60%			
Water	80955	Background, total	0.00028	87.40%	72.90%			
1000								
Water	80991	0-10 min, overflow, dissolved	0.00025	75,70%	92.20%			
Water	80992	10-20 min, overflow, dissolved	0.00025	/5.10%	81.70%			
vvater	80993	20-30 min, overnow, dissolved	0.00025	73 20%	83.20%			
Water	80956	10-10 min, overnow, total	0.00025	03,00%	70.90%			
Water	80958	20-30 min, overflow, total	0.00025	74.40%	63.90%			
Water	80994	0-10 min, non-overflow, dissolved	0.00025	73.30%	84.10%			
Water	80995	10-20 min, non-overflow, dissolved	0.00025	79.50%	87.40%			
Water	80996	20-30 min, non-overflow, dissolved	0,00025	73.40%	84 10%			
Water	80959	0-10 min, non-overliow, total	0.00025	82 40%	75.20%			
Water	80961	20-30 min, non-overliow, total	0.00025	82 30%	79.50% 80.60%			
Trans.	00001	To as multiply craned to a						
Lafter		Hopper Inflow Monitoring		and and a				
Water	81114	3& 6 min, dissolved	0.00025	80.80%	78.00%			
Water	81115	9&12 min, dissolved	0.00026	82.20%	75.20%			
vvater	81116	15&18 min, dissolved	0.00027	82.10%	73.50%			
Water	01117	278.20 min, dissolved	0.00025	93 30%	80.70%			
Water	80903	38 6 min total	0.00025	35 50%	45 20%	0 000034	0.000026	
Water	80904	9812 min total	0.00025	31.64%	43.66%	0.000043	0.000032	
Water	80905	15&18 min, total	0.00027	39.39%	59 50%	0.000052	0 000032	
Water	80906	21&24 min, total	0.00027	44.21%	59.72%	0.000046	0.000029	
Water	80907	27&30 min, total	0.00025	44.04%	41.07%	0.000043	0.000025	
		Honnor Overflow Menitoring						
Water	81119	28 4 min dissolved	0.00026	88 10%	80.40%			
Water	81120	6& 8 min dissolved	0.00025	92 10%	76 20%			
Water	81121	10&12 min. dissolved	0.00025	91,70%	81.80%			
Water	81122	14&16 min, dissolved	0.00025	72.30%	56,10%			
Water	81123	18&20 min, dissolved	0.00024	73.50%	61.10%			
Water	80909	2& 4 min, total	0.00027	40.11%	58.27%	0.000068	0.000050	
Water	80910	6& 8 min, total	0.00027	47 04%	64.93%	0.000069	0.000048	
Water	80911	10&12 min, total	Broken	Broken	Broken	Broken	Broken	
Water	80912	14&16 mm, total	0.00025	48.41%	78 19%	0.000130	0.000093	
Water	80913	18&20 min, totai	0.00027	44.62%	83.94%	0.000088	0.000059	
		Site Water						
Water	81621	Sample 1 Total	0.00025	76.88%	68.76%	0.000025	0.000025	
Water	81622	Sample 2 Total	0.00025	60.17%	69.83%	0.000025	0.000025	
vvater	81623	Sample 3 Total	0.00025	(1,10%)	68,80%	0.000025	0.000025	
		Elutriate						
Water	81627	Sample 1 Dissolved	0.00050	75.82%	87.54%	0.000050	0.000050	
Water	81628	Sample 2 Dissolved	0.00050	85 13%	88.79%	0.000050	0.000050	
Water	81629	Sample 3 Dissolved	0.00050	76.31%	8/53%	0.000050	0.000050	
vvater	81624	Sample 1 Total	0,00025	81.58%	64.33%	0.000025	0.000025	
Water	81626	Sample 2 Total	0.00025	67.60%	61.90%	0.000025	0.000025	
AADref	01020	Sample 5 Fotal	0.00020	01,00.15	GILBOR			
			CO. CO.		-		Sec. in	
SAMPLE	SAMPLE	DESCRIPTION	TOXAPHEN	TCLXYL-S	DCLBP	a-CHLORD	g-CHLORD	
		Detection Limit (mg/kg)	0.018			0.00096	0.0019	
		In the De discost						
Sediment	81711	Sample #1	0.018	86 90%	92 01%	0.0011	0.0035	
Sediment	81712	Sample #7	0.018	91 01%	92 77%	0.0016	0.0035	
Sediment	81713	Sample #3	0.018	84 77%	102.76%	0 0011	0 0038	
TOXAPHE	N - Toxaphe	TcLXYL-S - 2.4.5.6-Tetrachio	ro-m-xvlene(Surrog	ate(60-150 WS))	DCLBP - Dec	achlorobiphenvl(S	urrogate (60-150 V	VS))
a-CHLORI	- a-CHLOP	RDANE g-CHLORD - g-CHLORD	ANE	1		A.12.940	1. and (1. 1. 1. 1. 1.	- an
BOLD - les	s than value	IS	nes loss then the	conting limit				
Values bel	ow less than	values are estimated results. Results	are less than the re	eponing limit.				
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AMPLE SAMPLE D VPE D D D Vater 80983 B Vater 80984 C Vater 80985 10 Vater 80985 20 Vater 80985 20 Vater 80985 20 Vater 80985 20 Vater 80985 20 Vater 80985 20 Vater 80953 10 Vater 80954 20 Vater 81005 20 Vater 81005 20 Vater 80891 10 Vater 80892 10 Vater 80892 10 Vater 80893 1 Vater 80893 1 Vater 80893 1 Vater 80893 1 Vater 80893 1 Vater 80893 1 Vater 80895 20 Vater 81009 1 Vater 81100 Vater 81100 Vater 81100 Vater 80893 1 Vater 80893 1 Vater 80893 1 Vater 80895 2 Vater 81604 S Vater 81603 S Vater 81603 S Vater 81603 S Vater 81603 S Vater 81603 S	DESCRIPTION Detection Limit (mg/l) Plume Monitoring Background, dissolved Background, total 0-10 min, overflow, dissolved 10-20 min, overflow, dissolved 10-20 min, overflow, total 10-20 min, non-overflow, total 10-20 min, non-overflow, total 0-10 min, non-overflow, dissolve 10-20 min, non-overflow, total 10-20 min, non-overflow, total	PCB 22 0 0000011 0.0000010 0.000011 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010	PCB 33 0.0000011 0.0000010 0.0000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010	PCB 37 0.0000011 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	PCB 42 0.0000011 0.0000011 0.0000011 0.0000010 0.0000010 0.0000010 0.0000010	PCB 47 0.00000110 0.00000110 0.00000110 0.00000100 0.0000100 0.0000100	PCB 54 0 0000011 0.0000010 0.0000011 0.0000010 0.0000010	PCB 0.00000 0.00000 0.00000
WPE ID Vater 80983 Br Vater 80984 Br Vater 80984 Br Vater 80985 Sr Vater 80986 20 Vater 80985 10 Vater 80986 20 Vater 80986 20 Vater 80985 10 Vater 80983 10 Vater 80983 10 Vater 80952 0 Vater 81106 1 Vater 81106 1 Vater 81106 1 Vater 81106 2 Vater 81106 2 Vater 81106 2 Vater 81107 2 Vater 81107 2 Vater 80892 1 Vater 80893 1 Vater 81109 1 Vater <	Detection Limit (mg/l) Plume Monitoring Background, dissolved Background, total 0-10 min, overflow, dissolved 10-20 min, overflow, dissolved 20-30 min, overflow, dissolved 0-10 min, overflow, total 10-20 min, overflow, total 0-10 min, non-overflow, dissolve 10-20 min, non-overflow, dissolve 10-20 min, non-overflow, dissolve 10-20 min, non-overflow, dissolve 10-20 min, non-overflow, total 10-20 min, non-overflow, total 10-21 min, dissolved 98.12 min, dissolved 158.18 min, dissolved	0 0000011 0.0000010 0.0000011 0.0000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.0000011 0.0000010 0.0000011 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.0000011 0.0000010 0.0000011 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.0000011 0.0000010 0.0000011 0.0000010 0.0000010 0.0000010 0.0000010	0.00000110 0.00000100 0.00000110 0.00000100 0.00000100 0.00000100	0.0000010 0.0000010 0.0000011 0.0000010	0.00000 0.00000 0.00000
Du Vater 80983 Bit Vater 80984 C Vater 80984 Bit Vater 80984 C Vater 80985 10 Vater 80986 12 Vater 80986 12 Vater 80987 C Vater 80987 C Vater 80983 12 Vater 80985 12 Vater 80954 22 Vater 80953 1 Vater 80891 2 Vater 80891 2 Vater 80892 2 Vater 80893 1 Vater 80894 2 Vater 80895 2 Vater 80895	Detection Limit (mg/l) Plume Monitoring Background, dissolved Background, total 0-10 min, overflow, dissolved 10-20 min, overflow, dissolved 20-30 min, overflow, total 10-20 min, overflow, total 10-20 min, non-overflow, dissolve 10-20 min, non-overflow, dissolve 10-20 min, non-overflow, dissolve 20-30 min, non-overflow, total 10-20 min, dissolved 9&12 min, dissolved 15x18 min, dissolved	0 0000011 0.0000010 0.0000011 0.0000011 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.0000011 0.0000010 0.0000011 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.0000011 0.0000010 0.0000011 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.0000011 0.0000010 0.0000011 0.0000010 0.0000010 0.0000010 0.0000010	0.00000110 0.00000100 0.00000110 0.00000100 0.00000100 0.00000100	0.0000011 0.0000010 0.0000011 0.0000010 0.0000010	0.0000 0.00000 0.00000
Vater 80983 Employed Vater 80948 B Vater 80948 B Vater 80948 B Vater 80948 B Vater 80948 C Vater 80985 10 Vater 80983 20 Vater 80952 11 Vater 81005 20 Vater 81106 1 Vater 81106 2 Vater 81105 2 Vater 80893 1 Vater 81108 2 Vater 80891 2 Vater 80893 1 Vater 80895 2 Vater 80895 2	Plume Monitoring Background, clasolved Background, total 0-10 min, overflow, dissolved 10-20 min, overflow, dissolved 0-10 min, overflow, dissolved 0-10 min, overflow, total 10-20 min, overflow, total 20-30 min, on-overflow, dissolve 10-20 min, non-overflow, dissolve 20-30 min, non-overflow, dissolve 20-30 min, non-overflow, total 20-30 min, non-overflow, total 20-31 min, non-overflow, total 20-32 min, non-overflow, total 20-32 min, non-overflow, total 20-33 min, non-overflow, total	0.0000010 0.0000011 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.0000010 0.0000011 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.0000010 0.0000011 0.0000010 0.000010 0.000010 0.000010 0.000010	0.0000010 0.0000011 0.0000010 0.0000011 0.0000010 0.0000010 0.0000010	0.00000100 0.00000110 0.00000100 0.00000110 0.00000100 0.00000100	0.0000010 0.0000011 0.0000010 0.0000010	0.00000 0.00000 0.00000
vater 80983 st. vater 80984 E vater 80986 10 vater 80985 20 vater 80954 20 vater 81005 20 vater 80895 20 vater 80805 20	Background, classolved Background, classolved 0-10 min, overflow, dissolved 10-20 min, overflow, dissolved 20-30 min, overflow, dissolved 0-10 min, voerflow, total 20-30 min, voerflow, total 20-30 min, non-overflow, dissolve 10-20 min, non-overflow, dissolve 20-30 min, non-overflow, dissolve 20-30 min, non-overflow, total 20-30 min, dissolved 3& 6 min, dissolved 9&12 min, dissolved	0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.0000010 0.0000011 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.0000010 0.0000011 0.0000011 0.0000011 0.0000010 0.0000010 0.0000010	0.0000010 0.0000011 0.0000010 0.0000011 0.0000010 0.0000010	0.00000100 0.00000110 0.00000100 0.00000100 0.00000100	0.0000010 0.0000011 0.0000010 0.0000011	0.00000
Vater 80984 C Vater 80985 11 Vater 80985 12 Vater 80986 12 Vater 80980 12 Vater 80987 12 Vater 80981 12 Vater 80987 12 Vater 80987 12 Vater 80983 12 Vater 80983 12 Vater 80983 12 Vater 81105 14 Vater 81105 1 Vater 81106 1 Vater 81107 2 Vater 81063 1 Vater 81083 1 Vater 80893 2 Vater 80893 1 Vater 80893 1 Vater 80893 1 Vater 80893 1 Vater 80899 1	0-10 min, overflow, dissolved 10-20 min, overflow, dissolved 20-30 min, overflow, dissolved 0-10 min, overflow, total 10-20 min, overflow, total 20-30 min, one-overflow, dissolve 10-20 min, non-overflow, dissolve 20-30 min, non-overflow, dissolve 20-30 min, non-overflow, total 20-30 min, dissolved 38.12 min, dissolved 38.12 min, dissolved	0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010	0.0000010 0.0000011 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.0000010 0.0000011 0.0000010 0.0000010 0.0000010 0.0000010	0.0000010 0.0000011 0.0000010 0.0000010 0.0000010	0.00000100 0.00000110 0.00000100 0.00000100	0.0000010	0.00000
Jater 80985 10 Jater 80949 0 Jater 80949 0 Jater 80949 0 Jater 80950 10 Jater 80985 10 Jater 80987 20 Jater 80987 0 Jater 80988 10 Jater 80989 20 Jater 80952 0 Jater 80953 11 Jater 80954 20 Jater 81106 1 Jater 81106 1 Jater 81063 1 Jater 80893 1 Jater 80899 1 <td< td=""><td>10-20 min, overflow, dissolved 20-30 min, overflow, total 10-20 min, overflow, total 20-30 min, overflow, total 20-30 min, one-overflow, dissolve 10-20 min, non-overflow, dissolve 20-30 min, non-overflow, dissolve 20-30 min, non-overflow, total 20-30 min, non-overflow, total 20-31 min, dissolved 9812 min, dissolved 9812 min, dissolved</td><td>0.000011 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010</td><td>0.0000011 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010</td><td>0.0000011 0.0000010 0.0000010 0.0000010 0.0000010</td><td>0.0000011 0.0000010 0.0000010 0.0000010</td><td>0.00000110 0.00000100 0.00000100</td><td>0.0000011</td><td>the second se</td></td<>	10-20 min, overflow, dissolved 20-30 min, overflow, total 10-20 min, overflow, total 20-30 min, overflow, total 20-30 min, one-overflow, dissolve 10-20 min, non-overflow, dissolve 20-30 min, non-overflow, dissolve 20-30 min, non-overflow, total 20-30 min, non-overflow, total 20-31 min, dissolved 9812 min, dissolved 9812 min, dissolved	0.000011 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.0000011 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.0000011 0.0000010 0.0000010 0.0000010 0.0000010	0.0000011 0.0000010 0.0000010 0.0000010	0.00000110 0.00000100 0.00000100	0.0000011	the second se
rater 80/90, 24 rater 80/95, 0 rater 80/95, 2 rater 81/05, 1 rater 81/05, 1 rater 81/06, 1 rater 81/06, 1 rater 80/95, 2 rater 80/95, 2 rater 81/06, 1 rater 81/06, 1 rater 80/95, 2 rater 80/92, 1 rater 80/93, 1 rater 80/93, 1 rater 81/09, 2 rater 81/09, 2 rater 81/09, 1 rater 80/90, 1 rater 81/60, 3	20-30 min, overflow, total 10-20 min, overflow, total 10-20 min, overflow, total 20-30 min, one-overflow, dissolve 10-20 min, non-overflow, dissolve 20-30 min, non-overflow, dissolve 20-30 min, non-overflow, total 10-20 min, non-overflow, total 20-30 min, non-overflow, total 20-30 min, non-overflow, total 20-30 min, non-overflow, total 20-30 min, dissolved 9&12 min, dissolved 9&12 min, dissolved 15&18 min, dissolved	0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.0000010 0.0000010	0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.0000010 0.0000010 0.0000010	0.0000010	0.00000100	· · · · · · · · · · · · · · · · · · ·	0.00000
fater 80950 11 fater 80951 20 fater 80957 20 fater 80958 10 fater 80952 20 fater 80953 10 fater 80953 10 fater 80953 10 fater 80953 10 fater 81054 20 fater 81055 10 fater 81106 1 fater 81106 1 fater 81106 1 fater 81107 2 fater 81108 2 fater 80893 1 fater 80893 1 fater 80895 2 fater 80895 2 fater 81111 1 fater 80897 1 fater 80897 1 fater 80897 1	10-20 min, overflow, total 20-30 min, overflow, total 0-10 min, non-overflow, dissolve 20-30 min, non-overflow, dissolve 20-30 min, non-overflow, total 10-20 min, non-overflow, total 20-30 min, non-overflow, total 20-30 min, non-overflow, total Hopper Inflow Monitoring 3& 6 min, dissolved 9&12 min, dissolved 15&18 min, dissolved	0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.0000010 0.0000010	0.0000010		0.0000010	0.0000
ater 80951 26 ater 80987 6 ater 80988 10 ater 80989 26 ater 80952 10 ater 80952 10 ater 80952 10 ater 81004 26 ater 81104 10 ater 81105 2 ater 81107 2 ater 81107 2 ater 80893 1 ater 80893 1 ater 80893 1 ater 80895 2 ater 8	20-30 min, overflow, total 0-10 min, non-overflow, dissolve 10-20 min, non-overflow, dissolve 20-30 min, non-overflow, total 10-20 min, non-overflow, total 20-30 min, non-overflow, total 20-30 min, non-overflow, total Hopper Inflow Monitoring 3& 6 min, dissolved 9&12 min, dissolved 15&18 min, dissolved	0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.0000010 0.0000010 0.0000010 0.0000010	0.0000010		0.00000100	0.0000010	0.0000
ater 80987 C ater 80988 10 ater 80985 10 ater 80952 C ater 80953 10 ater 81105 - ater 81105 - ater 81104 - ater 81105 - ater 81106 1 ater 81108 2 ater 8106 1 ater 81083 1 ater 80893 1 ater 80892 - ater 80893 1 ater 80895 2 ater 80892 - ater 80901 1 ater 80901 </td <td>0-10 min, non-overflow, dissolve 10-20 min, non-overflow, dissolve 20-30 min, non-overflow, dissolve 20-10 min, non-overflow, total 10-20 min, non-overflow, total 20-30 min, non-overflow, total Hopper Inflow Monitoring 3& 6 min, dissolved 9&12 min, dissolved 15&18 min, dissolved</td> <td>0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010</td> <td>0.0000010 0.0000010 0.0000010</td> <td></td> <td>0.0000010</td> <td>0.00000100</td> <td>0.0000010</td> <td>0.0000</td>	0-10 min, non-overflow, dissolve 10-20 min, non-overflow, dissolve 20-30 min, non-overflow, dissolve 20-10 min, non-overflow, total 10-20 min, non-overflow, total 20-30 min, non-overflow, total Hopper Inflow Monitoring 3& 6 min, dissolved 9&12 min, dissolved 15&18 min, dissolved	0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.0000010 0.0000010 0.0000010		0.0000010	0.00000100	0.0000010	0.0000
ater 80988 10 ater 80989 20 ater 80952 0 ater 80952 0 ater 80952 0 ater 80953 10 ater 81104 4 ater 81105 1 ater 81107 2 ater 81107 2 ater 81082 2 ater 80891 1 ater 80892 1 ater 80892 1 ater 80892 2 ater 80892 1 ater 80892 2 ater 80892 2 ater 80893 1 ater 80892 2 ater 80892 2 ater 80892 2 ater 80892 3 ater 80892 3 ater 80892<	10-20 min, non-overflow, dissolve 20-30 min, non-overflow, dissolve 3-10 min, non-overflow, total 10-20 min, non-overflow, total 20-30 min, non-overflow, total Hopper Inflow Monitoring 3& 6 min, dissolved 9&12 min, dissolved 15&18 min, dissolved	0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.0000010 0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000
ater 80989 2.2 ater 80953 11 ater 80953 12 ater 81064 20 ater 81106 1 ater 81106 1 ater 81106 1 ater 81106 1 ater 81063 1 ater 80893 1 ater 80893 1 ater 80893 1 ater 80693 2 ater 80693 2 ater 80693 1 ater 80693 1 ater 80695 2 ater 81109 1 ater 81109 1 ater 81097 1 ater 80901 1 ater 81603 Sater ater 81604 Sater ater 81604 Sater ater	20-30 min, non-overflow, dissolve 0-10 min, non-overflow, total 10-20 min, non-overflow, total 20-30 min, non-overflow, total Hopper Inflow Monitoring 38. 6 min, dissolved 9812 min, dissolved 15818 min, dissolved	0.0000010 0.0000010 0.0000010 0.0000010	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000
Alter 30052 1C atter 60953 1C atter 60953 1C atter 60953 1C atter 6105 2C atter 81005 2C atter 81005 2C atter 81005 2C atter 80891 2C atter 80891 2C atter 80892 2C atter 80892 2C atter 80695 2 atter 80695 2 atter 81110 2C atter 81111 1 atter 81112 1 atter 80697 1 atter 80900 1 atter 80690 1 atter 81604 Sc atter 81604 Sc atter 81604 Sc atter 81604 Sc	10-20 min, non-overflow, total 20-30 min, non-overflow, total Hopper Inflow Monitoring 3& 6 min, dissolved 9&12 min, dissolved 15&18 min, dissolved	0.0000010 0.0000010	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000
ater 60954 20 ater 81104	20-30 min, non-overflow, total Hopper Inflow Monitoring 3& 6 min, dissolved 9&12 min, dissolved 15&18 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000
Hki ater 81104 ater 81105 ater 81107 ater 81107 ater 81107 ater 81107 ater 81083 ater 80892 ater 80893 ater 80893 ater 80895 ater 80895 ater 81109 ater 81110 ater 81111 ater 81112 ater 81112 ater 81112 ater 81112 ater 80930 ater 81003 ater 81603 ater 81604 ater 81605 ater 81605 ater 81605 ater 81609 ater 81603 ater 81603 ater 81603 ater 81603 <td< td=""><td>Hopper Inflow Monitoring 3& 6 min, dissolved 9&12 min, dissolved 15&18 min, dissolved</td><td></td><td>0.0000010</td><td>0.0000010</td><td>0.0000010</td><td>0.00000100</td><td>0.0000010</td><td>0.0000</td></td<>	Hopper Inflow Monitoring 3& 6 min, dissolved 9&12 min, dissolved 15&18 min, dissolved		0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000
Atter 81104 No. Atter 81106 1 Atter 81106 1 Atter 81106 2 Atter 81106 2 Atter 81108 2 Atter 81106 1 Atter 81082 2 Atter 80892 1 Atter 80693 1 Atter 80694 2 Atter 81100 1 Atter 81100 1 Atter 81100 1 Atter 81100 1 Atter 81111 1 Atter 81111 1 Atter 81603 53 Atter 81604 53 Atter 81603 53 Atter 81604 53 Atter 81604 54 Atter 81604 53 Atter 81604 54 <t< td=""><td>3& 6 min, dissolved 9&12 min, dissolved 15&18 min, dissolved</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	3& 6 min, dissolved 9&12 min, dissolved 15&18 min, dissolved							
tter 81105 atter 81106 1 ter 81007 2 atter 81081 2 atter 80892 1 atter 80895 2 atter 80895 2 atter 81109 1 atter 81110 1 atter 81112 1 atter 81112 1 atter 81112 1 atter 80997 1 atter 80990 1 atter 81603 Sister atter 81605 Sister atter 81605 Sister atter 81605 Sister atter 81610 Sister atter 81605 Sister	9&12 min, dissolved 15&18 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000
ater 81106 1 ater 81107 2 ater 81107 2 ater 80891 ater 80892 ater 80892 ater 80892 ater 80895 2 ater 80895 2 ater 81110 ater 81110 ater 81110 ater 81110 ater 81111 1 ater 81112 1 ater 81113 1 ater 80897 ater 81613 5 ater 81604 5 ater 81604 5 ater 81605 5 ater 81605 5 ater 81605 5 ater 81605 5 ater 81605 5 ater 81611 5 ater 81609 5 ater 81611 5 ater 81609 5 ater 81611 5 ater 81605 5 ater 81611 5 ater 81609 5 ater 81611 5 ater 81605 5 ater 81605 5 ater 81611 5 ater 81605 5 ater 81605 5 ater 81605 5 ater 81611 5 ater 81605 5 ater 8	15&18 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000
ater 81107 2 ater 80108 2 ater 80891 3 ater 80892 1 ater 80893 1 ater 80893 1 ater 80893 1 ater 80893 1 ater 80895 2 ater 81109 4 ater 81109 4 ater 81110 4 ater 81112 1 ater 81113 1 ater 81113 1 ater 81113 1 ater 80892 1 ater 80901 1 ater 80901 1 ater 81604 S ater 81604 S ater 81604 S ater 81604 S ater 81605 S ater 81610 <td>21924 min discoluted</td> <td>0.0000010</td> <td>0.0000010</td> <td>0.0000010</td> <td>0.0000010</td> <td>0.00000050</td> <td>0.0000010</td> <td>0.0000</td>	21924 min discoluted	0.0000010	0.0000010	0.0000010	0.0000010	0.00000050	0.0000010	0.0000
ater 80891 ater 80892 ater 80893 1 ater 80893 1 ater 80894 2 ater 80695 2 ater 81109 ater 81100 ater 81110 ater 81111 1 ater 81111 1 ater 81113 1 ater 81113 1 ater 80897 ater 80899 1 ater 80899 1 ater 80899 1 ater 80899 1 ater 80899 1 ater 80895 2 ater 80697 ater 81603 5 ater 81604 5 ater 81604 5 ater 81604 5 ater 81604 5 ater 81605 5 ater 81610 5 ater 81610 5 ater 81610 5 ater 81610 5 ater 81610 5 ater 81604 5 ater 81604 5 ater 81604 5 ater 81605 5 ater 81604 5 ater 81605 5 ater 81610 5 ater 81605 5 at	27&30 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000
tter 80692 tter 80693 1 tter 80694 2 tter 60895 2 tter 60895 2 tter 81109 tter 81110 tter 81111 1 tter 81112 1 tter 81112 1 tter 81112 1 tter 81112 1 tter 81112 1 tter 80897 tter 80899 1 tter 80899 1 tter 80890 1 tter 80890 1 tter 81603 Sc tter 81604 Sc tter 81605 Sc tter 81605 Sc tter 81610 Sc tter 81611 Sc tter 81611 Sc tter 81605 Sc tter 81610 Sc tter 81610 Sc tter 81610 Sc tter 81610 Sc tter 81605 Sc tter 81610 Sc tter 81610 Sc tter 81605 Sc tter 81610 Sc tter 81605 Sc tter 81610 Sc tter 81605 Sc tt	3& 6 min, total	0.0000011	0.0000011	0.0000011	0.0000016	0.0000095	0.0000011	0.0000
ater 80684 2 ater 80684 2 ater 80685 2 ater 80685 2 ater 80685 2 ater 81109 1 ater 81110 1 ater 81112 1 ater 80907 1 ater 80898 1 ater 806901 1 ater 81603 Sz ater 81603 Sz ater 81604 Sz ater 81605 Sz ater 81605 Sz ater 81610 Sz ater 81611 Sz ater 81611 Sz ater 81610 Sz	9&12 min, total	0.0000010	0.0000010	0.0000010	0.0000031	0 00000180	0.0000092	0.0000
Alter 80095 2 alter 81109 Ho alter 81110 Ho ater 81111 1 ater 81112 1 ater 81113 1 ater 81113 1 ater 81113 1 ater 80898 1 ater 808901 1 ater 809001 1 ater 81603 Sa ater 81604 Sa ater 81604 Sa ater 81605 Sa ater 81605 Sa ater 81605 Sa ater 81605 Sa ater 81610 Sa ater 81610 Sa ater 81610 Sa ater 81605 Sa	21824 min, total	0.0000011	0.0000011	0.0000011	0.0000021	0.000000550	0.0000084	0.0000
Hit ater 81109 ater 81110 ater 81111 ater 81112 ater 81112 ater 81112 ater 81112 ater 81112 ater 810898 ater 80890 ater 80890 ater 80900 ater 80901 ater 81603 ater 81604 ater 81605 ater 81605 ater 81605 ater 81609 ater 81610 ater 81611 ater 81612 ater 81613 ater 81610	27&30 min, total	0.0000011	0.0000011	0.0000011	0.0000038	0.00000110	0.0000011	0.0000
ater 81109 ater 81110 ater 81111 1 ater 81112 1 ater 81113 1 ater 80897 ater 80898 ater 80890 1 ater 80900 1 ater 80900 1 ater 81604 Sa ater 81605 Sa ater 81605 Sa ater 81610 Sa ater 81610 Sa ater 81610 Sa ater 81610 Sa	Lieuwe Curdinu Mentalon							
ater 81110 ater 81111 1 ater 81112 1 ater 81113 1 ater 80897 ater 80899 1 ater 80899 1 ater 80901 1 ater 80901 1 ater 81604 5 ater 81605 5 ater 81605 5 ater 81610 5 ater 81611 5 ater 81609 5 ater 81611 5 ater 81609 5 ater 81610 5 ater 81610 5 ater 81610 5 ater 81609 5 ater 81610 5 ater 81609 5 ater 81600 5 ater 8160	28 4 min dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000
ater B1111 1 1 ater B1112 1 ater B1113 1 ater B0897 ater B0899 1 ater B0900 1 ater B0900 1 ater B1603 Sa ater B1604 Sa ater B1604 Sa ater B1604 Sa ater B1604 Sa ater B1605 Sa ater B1610 Sa ater B1611 Sa ater B1611 Sa ater B1610 Sa	6& 8 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000
ater 81172 1 ater 8107 1 ater 80897 1 ater 80898 1 ater 80990 1 ater 80900 1 ater 81603 5% ater 81604 S% ater 81604 S% ater 81605 S% ater 81604 S% ater 81604 S% ater 81605 S% ater 81604 S% ater 81605 S% ater 81604 S% ater 81605 S% ater 81605 S%	10&12 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000
ater 80697 ater 80697 ater 80898 ater 80990 1 ater 80900 1 ater 81603 Sc ater 81604 Sc ater 81604 Sc ater 81605 Sc ater 81610 Sc ater 81611 Sc ater 81611 Sc ater 81611 Sc ater 81605 Sc	14&16 min, dissolved 18&20 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000
ater 80898 ater 80899 1 ater 80900 1 ater 80901 1 ater 81603 52 ater 81604 52 ater 81605 52 ater 81609 52 ater 81610 53 ater 81611 53 ater 81615 52	2& 4 min, total	0.0000011	0.0000011	0.0000011	0.0000046	0.00000830	0.0000011	0.0000
ater 80899 1 ater 80901 1 ater 80901 1 ster 81603 S; ater 81604 S; ater 81605 S; ater 81609 S; ater 81610 S; ater 81611 S; ater 81611 S; ater 81600 S; ater 81600 S;	6& 8 min, total	0.0000011	0.0000011	0.0000011	0.0000011	0.00000110	0.0000150	0.0000
ater 80901 1. ater 81603 52 ater 81604 52 ater 81604 52 ater 81605 52 ater 81609 52 ater 81610 53 ater 81611 52 ater 81610 52 ater 81605 52	10&12 min, total	0.0000011	0.0000011	0.0000011	0.0000011	0.00000110	0.0000160	0.0000
Si ater 81603 St ater 81604 St ater 81605 St ater 81609 St ater 81610 St ater 81611 St ater 81610 St ater 81606 St	18&20 min, total	0.0000010	0.0000010	0.0000010	0.0000058	0.00000100	0.0000190	0,0000
Si ater 81603 Sa ater 81604 Sa ater 81605 Sa ater 81609 Sa ater 81610 Sa ater 81611 Sa ater 81611 Sa ater 81615 Sa								
ater 81604 Sa ater 81605 Sa ater 81609 Sa ater 81610 Sa ater 81611 Sa ater 81611 Sa ater 81606 Sa	Sample 1 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000
ater 61605 Sa ater 81609 Sa ater 81610 Sa ater 81611 Sa ater 81611 Sa ater 81605 Sa	Sample 2 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000
El ater 81609 Sa ater 81610 Sa ater 81611 Sa ater 81606 Sa	Sample 3 Total	0.0000010	0.000010	0.000010	0.000010	0.0000100	0.0000010	0.0000
ater 81609 Sa ater 81610 Sa ater 81611 Sa ater 81606 Sa	Elutriate	0.0000000		0.0000000	0.0000010	0.00000100	0.0000040	0.000
ater 81611 Sa ater 81606 Sa	Sample 1 Dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000
ater 81606 Sa	Sample 3 Dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000
	Sample 1 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000
ater 81607 Sa ater 81608 Sa	Sample 3 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.00000051	0.0000010	0.0000
MPLE SAMPLE D	DESCRIPTION	PCB 22	PCB 33	PCB 37	PCB 42	PCB 47	PCB 64	PCI
ID ID	Detection Limit (ma/ka)	0.00077	0.00077	0.00077	0.00077	0.00077	0.00077	0.00
De la	Institu Sediment	0.00077	0.00077	0.00017	0.00017	0.00011	0.00077	0.00
diment 81717 Sa	Sample #1	0.00077	0.00077	0.00077	0.00077	0.00077	0.00077	0.00
diment 81718 Sa	Sample #2	0.00077	0.00077	0.00077	0.00077	0.00077	0.00077	0.00
diment 81719 Sa	Sample #3	0.00077	0.00077	0.00077	0.00077	0.00077	0.00077	0.00
LD - less than values	Southing and							

Delaware River	Water	Analysis	(Fine-Grained	Site)

SAMPLE	SAMPLE	DESCRIPTION	PCB 80	PCB 81	PCB 84	PCB 91	PCB 92	PCB 95	PCB 99
		Detection Limit (mg/l)	0.0000011	0.0000011	0,00000110	0 00000110	0.0000011	0.00000110	0.00000110
		Plume Monitoring							
Water Water	80983 80948	Background, dissolved Background, total	0.0000010 0.0000011	0.0000010 0.0000011	0.00000100 0.00000110	0.00000100 0.00000110	0.0000010 0.0000011	0.00000058 0.00000110	0.00000100 0.00000110
Water	80984	0-10 min overflow dissolved	0.0000010	0.0000010	0.00000100	0.00000100	0.0000010	0 00000058	0.00000100
Water	80985	10-20 min, overflow, dissolved	0.0000011	0.0000011	0.00000110	0.00000110	0.0000011	0.00000085	0.00000110
Water	80986	20-30 min, overflow, dissolved	0.0000010	0.0000010	0.00000100	0.00000100	0.0000010	0.00000049	0.00000100
Water	80949	0-10 min, overflow, total	0.0000010	0.0000010	0.00000100	0.00000100	0.0000010	0.00000100	0.00000100
Water	80950	10-20 min, overflow, total	0.0000010	0.0000010	0.00000100	0.00000100	0.0000010	0.00000100	0.00000100
Water	80951	20-30 min, overflow, total	0.0000010	0.0000010	0.00000100	0.00000100	0.0000010	0.00000100	0.00000100
Water	80987	0-10 min, non-overflow, dissolve	0.0000010	0.0000010	0.00000100	0.00000100	0.0000010	0.00000049	0.00000100
Water	80968	10-20 min, non-overflow, dissolve	0.0000010	0.0000010	0.00000100	0.00000100	0.0000010	0.00000120	0.00000100
Water	80989	20-30 min, non-overflow, dissolve	0.0000010	0.0000010	0.00000100	0.00000100	0.0000010	0.00000056	0.00000100
Water	80952	0-10 min, non-overflow, total	0.0000010	0.0000010	0.00000100	0.00000100	0.0000010	0.00000100	0.00000100
Water	80953	10-20 min, non-overflow, total	0.0000010	0.0000010	0.00000100	0.00000100	0.0000010	0.00000100	0.00000100
vvater	00804	20-30 min, non-oveniow, total	0.0000010	0.0000010	0.00000100	0.00000100	0.0000010	0.00000100	0.00000100
		Honner Inflow Monitoring							
Water	81104	3& 6 min dissolved	0.0000010	0.0000010	0.00000100	0.00000100	0.0000010	0.00000084	0.00000060
Water	81105	9&12 min, dissolved	0.0000010	0.0000010	0.00000100	0.00000100	0.0000010	0.00000110	0.00000100
Water	81106	15&18 min, dissolved	0.0000010	0.0000010	0.00000100	0.00000100	0.0000010	0.0000095	0.00000100
Water	81107	21&24 min, dissolved	0.0000010	0.0000010	0.00000100	0.00000100	0.0000010	0.0000084	0.00000045
Water	81108	27&30 min, dissolved	0.0000010	0.0000010	0.00000100	0.00000100	0.0000010	0.00000072	0.00000100
Water	80891	38, 6 min, total	0.0000011	0.0000011	0.00000110	0.00000110	0.0000011	0.00000110	0.00000110
Water	80892	158.18 min, total	0.0000010	0.0000010	0.00000100	0.00000100	0.0000010	0.00000100	0.00000100
Water	80894	21824 min, total	0.0000011	0.0000011	0.00000110	0.00000320	0.0000068	0.00001200	0.00000730
Water	80895	27&30 min, total	0.0000011	0.0000011	0.00000110	0.00000830	0.0000150	0.00002400	0.00001300
		Hopper Overflow Monitoring							
Water	81109	2& 4 min, dissolved	0.0000010	0.0000010	0.00000100	0.00000100	0.0000010	0.00000250	0.00000046
Water	81110	6& 8 min, dissolved	0.0000010	0.0000010	0.00000100	0.00000100	0.0000010	0.00000120	0.00000058
Water	81111	10&12 min, dissolved	0.0000010	0.0000010	0.00000100	0.00000100	0.0000010	0.00000300	0.00000008
Water	81113	18820 min dissolved	0.0000010	0.0000010	0.00000100	0.00000100	0.0000010	0.00000170	0.00000063
Water	80897	28 4 min, total	0.0000011	0.0000011	0.00000110	0.00001100	0.0000150	0.00002700	0.00001500
Water	80898	6& 8 min, total	0.0000011	0.0000011	0.00000110	0 00000980	0 0000180	0.00002700	0.00001400
Water	80899	10&12 min, total	0.0000011	0.0000011	0.00000110	0.00001100	0.0000160	0.00003100	0.00001900
Water	80900	14&16 min, total	0.0000011	0.0000011	0.00000110	0.00001400	0.0000250	0.00003700	0.00002100
water	00501	Todazo milit, total	0.0000010	0.0000010	0.00000100	0.00001200	5.000110	0.0000000	0,0000,100
		Site Water							
Water	81603	Sample 1 Total	0.0000010	0.0000010	0.00000100	0.00000046	0.0000010	0.00000093	0.00000100
Water	81604	Sample 2 Total	0.0000010	0.0000010	0.00000100	0.00000100	0.0000010	0.00000100	0.00000100
Water	81605	Sample 3 Total	0.0000010	0.0000010	0.00000100	0.00000046	0.0000010	0 00000095	0.00000100
		El avata							
Water	81609	Sample 1 Dissolved	0.0000010	0.0000010	0.00000100	0.00000054	0.0000010	0.00000110	0.0000038
Water	81610	Sample 2 Dissolved	0.0000010	0.0000010	0.00000100	0.00000068	0.0000010	0.00000094	0.00000047
Water	81611	Sample 3 Dissolved	0.0000010	0.0000010	0.00000091	0.00000093	0.0000010	0.00000057	0.00000028
Water	81606	Sample 1 Total	0.0000010	0.0000010	0.00000100	0.00000100	0.0000010	0.00000110	0.00000100
Water	81607	Sample 2 Total Sample 3 Total	0.0000010	0.0000010	0.00000100	0.00000100	0.0000010	0.00000140	0.00000100
it is a second		and the state							
SAMPLE	SAMPLE	DESCRIPTION	PCB 80	PCB 81	PCB 84	PCB 91	PCB 92	PCB 95	PCB 99
	ID			2.000		2.411.0			and the second
		Detection Limit (mg/kg)	0.00077	0.00077	0.00077	0.00077	0.00077	0.00077	0.00077
Sediment	91717	Insitu Sediment	0.00077	0 00077	0 00077	0.00077	0 00077	0.00077	0.00046
Sediment	81718	Sample #2	0.00077	0.00077	0.00077	0.00040	0.00049	0.00077	0.00071
Sediment	81719	Sample #3	0.00077	0.00077	0.00077	0.00052	0.00062	0.00077	0.00074
BOLD - le Values be	ss than valu	sample #3 ues in values are estimated results. Resul	ts are less than the	e reporting limit.	0.00077	0.00032	0.00002	0.00077	0,000
				Page	2				
				, ag					

	and the	2011 C	Car all		- Inde	125.00	-	and the second	1.60
AMPLE PE	SAMPLE ID	DESCRIPTION	PCB 110	PCB 119	PCB 120	PCB 123	PCB 126	PCB 127	PCB
		Detection Limit (mg/l)	0.00000110	0.0000011	0,0000011	0.0000011	0.0000011	0.0000011	0.0000
ater	80983	Plume Monitoring Bankground, dissolved	0 0000062	0.0000010	0 0000010	0.0000010	0.0000010	0.0000010	0 0000
ater	80948	Background, total	0.00000078	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000
ater	80984	0-10 min, overflow, dissolved	0.00000060	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	80985	10-20 min, overflow, dissolved	0.00000087	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000
ater	80949	0-10 min, overflow, total	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	80950	10-20 min, overflow, total	0.00000110	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
a(c)	00301	20-30 min, overnow, total	0.00000110	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	80987	10-10 min, non-overflow, dissolve 10-20 min, non-overflow, dissolve	0.00000074	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	80989	20-30 min, non-overflow, dissolve	0.00000065	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	80952	0-10 min, non-overflow, total	0.00000095	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	80953	20-30 min, non-overflow, total	0.00000073	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	81104	Hopper Inflow Monitoring 3& 6 min, dissolved	0.00000095	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	81105	9&12 min, dissolved	0.0000068	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	81106	15&18 min, dissolved	0.00000076	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	81108	27830 min, dissolved	0.00000076	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	80891	3& 6 min, total	0.00000990	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.000
ater	80892	9&12 min, total	0.00000250	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000
ater	80893	21&24 min, total	0.00001400	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000
ater	80895	27&30 min, total	0.00002900	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.000
		Hopper Overflow Monitoring							
ater	81109	2& 4 min, dissolved	0.00000095	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000
ater	81110	6& 8 min, dissolved	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000
ater	81112	14816 min dissolved	0.00000095	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000
ater	81113	18&20 min, dissolved	0.00000110	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000
ater	80897	2& 4 min, total	0.00003500	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0 000
ater	80898	10812 min. total	0.00003500	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.000
ater	80900	14&16 min, total	0.00004900	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0 000
ater	80901	18&20 min, total	0.00004100	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000
		Site Water							
ater	81603	Sample 1 Total	0.00000077	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater ater	81605	Sample 3 Total	0.00000110	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000
		Flutrista							
ater	81609	Sample 1 Dissolved	0.00000091	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000
ater	81610	Sample 2 Dissolved	0.0000088	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000
iter	81611	Sample 3 Dissolved	0.00000057	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000
ater	81607	Sample 2 Total	0.00000130	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000
ter	81608	Sample 3 Total	0.00000110	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000
MPLE	SAMPLE	DESCRIPTION	PCB 110	PCB 119	PCB 120	PCB 123	PCB 126	PCB 127	PCE
		Detection Limit (mg/kg)	0.00077	0.00077	0.00077	0.00077	0.00077	0.00077	0.0
		Insitu Sediment					1.1.1		
diment	81717	Sample #1	0.00100	0.00077	0.00077	0.00077	0.00077	0.00077	0.0
diment	81719	Sample #3	0,00100	0.00077	0.00077	0.00077	0.00077	0.00077	0.00
)LD - les	ss than valu	les	Ite are lace than the	reporting limit					
		Transed and committee results. Resu	and the same trian the	-fame					

Delaware River Water Analysis (Fine-Grained Site)

SAMPLE TYPE	SAMPLE	DESCRIPTION	PCB 135	PCB 146	PCB 149	PCB 157	PCB 158	PCB 166	PCB 168
		Detection Limit (mg/l)	0.0000011	0.00000110	0.00000110	0.0000011	0.0000011	0.0000011	0 00000110
		Plume Monitoring							
Water	80983 80948	Background, dissolved Background, total	0.0000010 0.0000011	0.00000100 0.00000110	0.00000100 0.00000110	0.0000010 0.0000011	0.0000010 0.0000011	0.0000010 0.0000011	0.00000100 0.00000110
Mator	80084	0.40 min mediaw dissolved	0.0000010	0.00000100	0.00000100	0.0000010	0.0000010	0.000010	0.00000100
Water	80985	10-20 min, overflow, dissolved	0.0000011	0.00000110	0.00000110	0.0000011	0.0000011	0.0000011	0.00000110
Water	80986	20-30 min overflow dissolved	0.0000010	0.00000100	0.00000100	0.0000010	0.0000010	0.0000010	0.00000100
Water	80949	0-10 min, overflow, total	0.0000010	0.00000100	0.00000100	0.0000010	0.0000010	0.0000010	0.00000100
Water	80950	10-20 min, overflow, total	0.0000010	0.00000064	0.00000100	0.0000010	0.0000010	0.0000010	0.00000100
Water	80951	20-30 min, overflow, total	0.0000010	0.0000057	0.00000100	0.0000010	0.0000010	0.0000010	0.00000100
Water	80987	0-10 min, non-overflow, dissolve	0.0000010	0.00000100	0.00000100	0.0000010	0.0000010	0.0000010	0.00000100
Water	80988	10-20 min, non-overflow, dissolve	0.0000010	0.00000100	0.00000100	0.0000010	0.0000010	0.0000010	0.00000100
Water	80989	20-30 min, non-overflow, dissolve	0.0000010	0.00000100	0.00000100	0.0000010	0.0000010	0.0000010	0.00000100
Water	80952	0-10 min, non-overflow, total	0.0000010	0.00000140	0.00000100	0.0000010	0.0000010	0.0000010	0.00000100
Water	80953	10-20 min, non-overflow, total	0.0000010	0.00000100	0.00000100	0.0000010	0.0000010	0.0000010	0.00000100
Water	80954	20-30 min, non-overflow, total	0.0000010	0.00000100	0.00000100	0.0000010	0.0000010	0.0000010	0.0000100
		Hooper Inflow Monitoring							
Water	81104	3& 6 min, dissolved	0.0000010	0.00000100	0.00000100	0.0000010	0.0000010	0.0000010	0.00000100
Water	81105	9812 min, dissolved	0.0000010	0.00000100	0.00000100	0.0000010	0.0000010	0.0000010	0.00000100
Water	81106	15&18 min, dissolved	0.0000010	0.00000100	0.00000100	0.0000010	0.0000010	0.0000010	0.00000100
Water	81107	21&24 min, dissolved	0.0000010	0,00000100	0.00000100	0.0000010	0,0000010	0.0000010	0.00000100
Water	81108	27&30 min, dissolved	0.0000010	0.00000100	0.00000100	0.0000010	0.0000010	0.0000010	0.00000100
Water	80891	3& 6 min, total	0.0000011	0.00000260	0.00001100	0.0000011	0.0000011	0.0000011	0.00000110
Water	80892	9&12 min, total	0.0000010	0.00000660	0.00002500	0.0000010	0.0000010	0.0000010	0.00000100
Water	80893	15&18 min, total	0,0000010	0.00000460	0.00001800	0.0000010	0.0000010	0.0000010	0.00000100
Water	80894	21824 min, total	0.0000011	0.00000110	0.00001800	0.0000011	0.0000011	0.0000011	0.00000110
vvater	80895	27&30 min, total	0.0000076	0.0000110	0.00003200	0.0000011	0.0000011	0.0000011	0.00000110
		Hopper Overflow Monitoring							
Water	81109	28, 4 min, dissolved	0.0000010	0.00000100	0.00000100	0,0000010	0.0000010	0.0000010	0.00000100
Water	81110	6& 8 min, dissolved	0.0000010	0.00000100	0.00000043	0.0000010	0.0000010	0.0000010	0.00000100
Water	81111	10&12 min, dissolved	0.0000010	0.00000100	0.00000054	0.0000010	0.0000010	0.0000010	0.00000100
Water	81112	14&16 min, dissolved	0.0000010	0.00000100	0.00000056	0.0000010	0.0000010	0.0000010	0.00000100
Water	81113	18&20 min, dissolved	0.0000010	0.00000100	0.00000100	0.0000010	0.0000010	0.0000010	0.00000040
Water	80897	28 4 min, total	0.0000088	0.00000110	0,00003800	0.0000011	0.0000011	0.0000011	0.00000110
vvater	80898	58 8 min, total	0.0000003	0.00000110	0.00000110	0,0000011	0.0000011	0.0000011	0.00000110
Vyater	00099	14216 min. total	0.0000140	0.00000110	0.00000110	0.0000011	0.0000011	0.0000011	0.00000110
Water	80901	18820 min, total	0.0000150	0.00000100	0.00000100	0.0000010	0.0000010	0.0000010	0.00000100
	1000	Site Water		0.00000000		0.00000.0	a cabina	a constant	. action to
Water	81603	Sample 1 Total	0.0000010	0.00000100	0.00000051	0.0000010	0.0000010	0.0000010	0.00000100
Water	81604	Sample 2 Total	0.0000010	0.00000100	0.00000053	0.0000010	0.0000010	0.0000010	0.00000006
vvater	81605	Sample 3 Total	0.000010	0.0000100	0.00000000	0.0000010	0.0000010	0.0000010	0.0000043
		Elutriate							
Water	81609	Sample 1 Dissolved	0.0000010	0.00000100	0.00000047	0.0000010	0.0000010	0.0000010	0.00000140
Water	81610	Sample 2 Dissolved	0.0000010	0.00000100	0.00000046	0.0000010	0.0000010	0.0000010	0.00000100
Water	81611	Sample 3 Dissolved	0.0000010	0.00000100	0 00000044	0.0000010	0.0000010	0.0000010	0.00000100
Water	81606	Sample 1 Total	0.0000010	0.00000100	0.0000091	0.0000010	0.0000010	0.0000010	0.00000100
Water	81607	Sample 2 Total	0.0000010	0.00000100	0.00000090	0.0000010	0.0000010	0.0000010	0.00000100
vvater	a 100a	Sample 3 Total	0.000010	0.00000100	0.00000070	0.000010	0.0000010	0.0000010	0.00000100
SAMPLE	SAMPLE	DESCRIPTION	PCB 135	PCB 146	PCB 149	PCB 157	PCB 158	PCB 166	PCB 168
TYPE	ID								
		Detection Limit. (mg/kg)	0.00077	0.00077	0.00077	0.00077	0.00077	0.00077	0.00077
		Insitu Sediment						1.7	
Sediment	81717	Sample #1	0.00077	0.00077	0.00120	0.00077	0.00077	0.00077	0.00077
Sediment	81718	Sample #2	0.00077	0.00077	0.00120	0.00077	0.00077	0.00077	0.00077
Sediment	81719	Sample #3	0.00077	0.00077	0,00100	0.00077	0.00077	0.00077	0.00077
BOLD - le	ess than val	Jes							
Values be	low less that	in values are estimated results. Result	ts are less than the	e reporting limit.					
				Page	4				

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		Delawara River Weter Asstudia 201-	Crained Site						
		Delaware River Water Analysis (Fine-	Grained Site)						
AMPLE	SAMPLE	DESCRIPTION	PCB 169	PCB 174	PCB 177	PCB 178	PCB 179	PCB 8	PCB
		Detection Limit (mg/l)	0.0000011	0.00000110	0.0000011	0 0000011	0.0000011	0 0000011	0.0000
line .	200222	Plume Monitoring	0.0000040	0.00000400	0.0000040	0.0000040	0.000004.0	0.0000010	0.0000
Vater	80983	Background, total	0.0000010	0.00000110	0.0000011	0.0000011	0.0000011	0.0000010	0.00000
Vater	80984	0-10 min, overflow, dissolved	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
/ater	80985	10-20 min, overflow, dissolved	0.0000011	0.00000110	0.0000011	0.0000011	0.0000011	0.0000011	0.00000
Vater	80949	0-10 min, overflow, total	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010	0.00000
Vater	80950	10-20 min, overflow, total	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
/ater	80951	20-30 min, overtiow, total	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
/ater	80987	0-10 min, non-overflow, dissolve	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
Vater	80988	10-20 min, non-overflow, dissolve	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
Vater	80952	0-10 min, non-overflow, total	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
/ater	80953	10-20 min, non-overflow, total	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
/ater	80954	20-30 min, non-overflow, total	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
		Hopper Inflow Monitoring							
/ater	81104	3& 6 min, dissolved	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
/ater	81105	9&12 min, dissolved	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
/ater	81107	21&24 min, dissolved	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
/ater	81108	27&30 min, dissolved	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
later later	80891	3& 6 min, total	0.0000011	0.00000390	0.0000024	0.0000011	0.0000011	0.0000011	0.0000
Vater	80893	15&18 min, total	0.0000010	0.00000620	0.0000042	0.0000010	0.0000010	0.0000010	0.0000
/ater	80894	21&24 min, total	0.0000011	0.00000820	0.0000023	0.0000011	0.0000017	0.0000011	0.0000
Vater	80895	27&30 min, total	0.0000011	0.00000110	0.0000011	0.0000011	0.0000069	0.0000063	0.0000
		Hopper Overflow Monitoring						and the second	
/ater	81109	2& 4 min, dissolved	0.0000010	0.00000049	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
vater Vater	81110 81111	10812 min, dissolved	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
/ater	81112	14&16 min, dissolved	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	81113	18&20 min, dissolved	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
/ater	80897	2& 4 min, total	0.0000011	0.00000110	0.0000011	0.0000011	0.0000011	0.0000011	0.0000
/ater	80899	10&12 min, total	0.0000011	0.00001700	0.0000011	0.0000011	0.0000011	0.0000140	0.0000
later	80900	14&16 min, total	0.0000011	0.00000110	0.0000011	0.0000011	0.0000011	0.0000011	0.0000
/ater	80901	18&20 min, total	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
		Site Water							
later	81603	Sample 1 Total	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
ater	81605	Sample 3 Total	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010	0 0000
		Elutriate							
/ater	81609	Sample 1 Dissolved	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
/ater	81610	Sample 2 Dissolved	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
/ater /ater	81606	Sample 3 Dissolved	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
/ater	81607	Sample 2 Total	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
/ater	81608	Sample 3 Total	0.0000010	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010	0.0000
AMPLE	SAMPLE	DESCRIPTION	PCB 169	PCB 174	PCB 177	PCB 178	PCB 179	PCB 8	PCB
		Detection Limit (mg/kg)	0.00077	0.00077	0.00077	0.00077	0.00077	0.00077	0.00
		Insitu Sediment							
ediment	81717	Sample #1	0.00077	0.00077	0.00077	0.00077	0.00077	0.00077	0.00
ediment ediment	81718 81719	Sample #2 Sample #3	0.00077 0.00077	0.00077 0.00077	0.00077 0.00077	0.00077	0.00077	0.00077	0.00
JLD - le	ss than valu	Jes	the second state						

PCBsfine	

		Delaware River Water Analysis (Fine-	Grained Site)						
SAMPLE	SAMPLE	DESCRIPTION	PCB 28	PCB 31	PCB 40	PCB 44	PCB 49	PCB.52	PCB 60
		Detection Limit (mg/l)	0.0000011	0.0000011	0.0000011	0.0000011	0.00000110	0.00000110	0.00000110
Water Water	80983 80948	Plume Monitoring Background, dissolved Background, total	0.0000010 0.0000011	0.0000017 0.0000011	0.0000010	0.0000010 0.0000011	0,00000100 0.00000110	0.00000046 0.00000110	0.00000100 0.00000110
Water Water Water Water Water Water	80984 80985 80986 80949 80950 80951	0-10 min, overflow, dissolved 10-20 min, overflow, dissolved 20-30 min, overflow, dissolved 0-10 min, overflow, total 10-20 min, overflow, total 20-30 min, overflow, total	0.00000010 0.0000011 0.0000010 0.0000010 0.0000010 0.0000010	0.0000010 0.0000011 0.0000010 0.0000010 0.0000010 0.0000010	0.0000010 0.0000011 0.0000010 0.0000010 0.0000010 0.0000010	0.0000010 0.0000011 0.0000010 0.0000010 0.0000010 0.0000010	0.00000100 0.00000110 0.00000100 0.00000100 0.00000100 0.00000100	0.00000100 0.00000110 0.00000100 0.00000120 0.00000095 0.00000077	0.00000100 0.00000110 0.00000100 0.00000100 0.00000100 0.00000100
Water Water Water Water Water Water	80987 80988 80989 80952 80953 80953	0-10 min, non-overflow, dissolve 10-20 min, non-overflow, dissolve 20-30 min, non-overflow, dissolve 0-10 min, non-overflow, total 10-20 min, non-overflow, total 20-30 min, non-overflow, total	0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.00000085 0.00000044 0.00000100 0.00000100 0.00000100 0.00000100	0.00000100 0.00000100 0.00000100 0.00000097 0.00000100 0.00000074	0.00000100 0.00000100 0.00000100 0.00000100 0.00000100 0.00000100
Water Water Water Water Water Water Water Water Water Water Water	81104 81105 81106 81107 81108 80891 80892 80893 80894 80895	Hopper Inflow Monitoring 38.6 min, dissolved 9&12 min, dissolved 15&18 min, dissolved 21&24 min, dissolved 27&30 min, dissolved 38.6 min, total 9&12 min, total 15&18 min, total 21&24 min, total 27&30 min, total	0.0000010 0.000010 0.000010 0.000010 0.0000010 0.0000067 0.000080 0.000080 0.000080 0.000087 0.0000130	0.0000010 0.0000010 0.0000010 0.0000010 0.0000011 0.0000010 0.0000010 0.0000011 0.0000011	0.0000010 0.0000010 0.0000010 0.0000010 0.0000011 0.0000010 0.0000010 0.0000010 0.0000010	0.0000010 0.0000014 0.0000010 0.0000057 0.000057 0.000052 0.000092 0.000092 0.000080 0.000080	0.0000100 0.00000100 0.0000072 0.0000046 0.0000046 0.00000410 0.00000600 0.0000600 0.0000600 0.0000600 0.00001200	D.00000083 0.0000093 0.0000094 0.0000080 0.0000170 0.0000100 0.0002500 0.0001600 0.0001500 0.00002600	0.00000100 0.00000100 0.00000100 0.00000100 0.00000100 0.00000040 0.00000130 0.0000075 0.0000075 0.00000150
Water Water Water Water Water Water Water Water Water Water Water	81109 81110 81111 81112 81113 80897 80898 80899 80900 80901	Hopper Overflow Monitoring 2& 4 min, dissolved 6& 8 min, dissolved 10&12 min, dissolved 14&16 min, dissolved 18&20 min, dissolved 2& 4 min, total 6& 8 min, total 10&12 min, total 14&16 min, total 18&20 min, total	0.0000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.0000011 0.0000130 0.0000180 0.0000180	0.0000031 0.0000038 0.0000029 0.0000037 0.0000011 0.0000011 0.0000011 0.0000011	0.0000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000088 0.0000120 0.0000120 0.0000130	0.0000010 0.000010 0.000010 0.000010 0.000010 0.0000200 0.0000200 0.0000200 0.0000200 0.0000300 0.0000300	D D0000110 0.0000047 0.0000065 0.0000060 0.00001400 0.00001400 0.00001400 0.00001600 0.00002000 0.00002000	0.0000086 0.0000082 0.00000120 0.00000110 0.00000140 0.00003400 0.00003400 0.00003700 0.00003900	0.00000100 0.0000100 0.0000100 0.00000100 0.00002000 0.00000190 0.00000220 0.00000220 0.00000220
Water Water Water	81603 81604 81605	Site Water Sample 1 Total Sample 2 Total Sample 3 Total	0.0000010 0.0000010 0.0000010	0.0000024 0.0000022 0.0000025	0.0000010 0.0000010 0.0000010	0.0000014 0.0000015 0.0000014	0.00000065 0.00000100 0.00000047	0.00000092 0.00000100 0.00000110	0.00000100 0.00000100 0.00000100
Water Water Water Water Water Water	81609 81610 81611 81606 81607 81608	Elutriate Sample 1 Dissolved Sample 2 Dissolved Sample 1 Total Sample 1 Total Sample 2 Total Sample 3 Total	0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.0000010 0.0000010 0.0000010 0.0000039 0.0000010 0.0000010	0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.00000100 0.0000100 0.0000300 0.0000330 0.0000330	0.00000100 0.0000077 0.0000054 0.0000150 0.0000180 0.0000160	0.00000100 0.00000100 0.00000100 0.00000100 0.00000100 0.00000100
SAMPLE	SAMPLE	DESCRIPTION	PCB 28	PCB 31	PCB 40	PCB 44	PCB 49	PCB 52	PCB 60
		Detection Limit (mg/kg)	0.00077	0.00077	0.00077	0.00077	0.00077	0.00077	0,00077
Sediment Sediment Sediment	81717 81718 81719	Insitu Sediment Sample #1 Sample #2 Sample #3	0.00077 0.00077 0.00077	0.00077 0.00077 0.00077	0.00077 0.00077 0.00077	0.00077 0.00077 0.00077	0 00061 0 00081 0 00069	0.00250 0.00250 0.00240	0.00057 0.00047 0.00039
BOLD - les Values bel	ss than valu low less tha	ues in values are estimated results. Resul	ts are less than the	reporting limit.					
				Page	6				

		Delaware River Water Analysis (Fine	-Grained Site)						
SAMPLE TYPE	SAMPLE	DESCRIPTION	PCB 70	PCB 77	PCB 82	PCB 86	PCB 87	PCB 97	PCB 101
		Detection Limit (mg/l)	0.00000110	0.0000011	0.0000011	0.00000110	0.00000110	0 00000110	0.00000110
Water Water	80983 80948	Plume Monitoring Background, dissolved Background, total	0.00000040 0.00000110	0.0000010 0.0000011	0.0000010 0.0000011	0.00000100	0.00000100 0.00000110	0.00000100 0.00000057	0.00000110
Water Water Water Water Water Water	80984 80985 80986 80949 80950 80951	D-10 min, overflow, dissolved 10-20 min, overflow, dissolved 20-30 min, overflow, dissolved 0-10 min, overflow, total 10-20 min, overflow, total 20-30 min, overflow, total	0.00000100 0 00000051 0 00000044 0.00000100 0 00000048 0 00000038	0.0000010 0.0000011 0.0000010 0.0000010 0.0000010 0.0000010	0.0000010 0.0000011 0.0000010 0.0000010 0.0000010 0.0000010	0.00000100 0.00000110 0.00000100 0.00000100 0.0000063 0.0000063	0.00000100 0.00000110 0.00000100 0.00000100 0.00000100 0.00000100	0.00000100 0.00000110 0.00000100 0.00000100 0.00000063 0.00000053	0 00000064 0 00000093 0 00000074 0 00000180 0 00000200 0 00000200
Water Water Water Water Water Water	80987 80988 80989 80952 80953 80953	0-10 min, non-overflow, dissolve 10-20 min, non-overflow, dissolve 20-30 min, non-overflow, dissolve 0-10 min, non-overflow, total 10-20 min, non-overflow, total 20-30 min, non-overflow, total	0.00000037 0.00000050 0.00000056 0.00000041 0.00000038 0.00000038	0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.00000100 0.00000100 0.00000100 0.0000041 0.0000047 0.0000043	0.00000100 0.00000100 0.00000100 0.00000100 0.00000100 0.00000100	0.00000100 0.00000100 0.00000100 0.00000041 0.00000047 0.00000043	0.00000093 0.00000085 0.00000091 0.00000150 0.00000230 0.00000190
Water Water Water Water Water Water Water Water Water Water Water	81104 81105 81106 81107 81108 80891 80892 80893 80894 80895	Hopper Inflow Monitoring 3& 6 min, dissolved 9&12 min, dissolved 15&18 min, dissolved 27&30 min, dissolved 27&30 min, dissolved 3& 6 min, total 9&12 min, total 15&18 min, total 21&24 min, total 21&24 min, total 27&30 min, total	0.00000062 0.0000042 0.0000053 0.00000059 0.0000041 0.00000420 0.00000890 0.00000660 0.0000660 0.0000660	0.0000010 0.000010 0.000010 0.000010 0.000010 0.000011 0.0000010 0.0000010 0.000011 0.0000011	0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000011 0.0000011	0.00000100 0.0000100 0.00000100 0.00000100 0.00000100 0.00000000	0.00000038 0.0000100 0.0000042 0.00000100 0.00000420 0.00000420 0.00000290 0.00000290 0.00000290	0.00000100 0.0000100 0.00000100 0.00000100 0.00000100 0.0000000 0.00000420 0.00000420 0.00000420 0.00000730	0.00000120 0.0000061 0.000000420 0.000000120 0.000000004 0.00001200 0.00001900 0.00001100 0.00001200 0.00002500
Water Water Water Water Water Water Water Water Water Water	81109 81110 81111 81112 81113 80897 80898 80899 80900 80901	Hopper Overflow Monitoring 28, 4 min, dissolved 68, 8 min, dissolved 10812 min, dissolved 18820 min, dissolved 18820 min, dissolved 28, 4 min, total 58, 8 min, total 10812 min, total 18820 min, total	0.0000086 0.0000084 0.0000059 0.00000074 0.00001200 0.00001300 0.00001500 0.00001500 0.00001600	0.0000010 0.000010 0.000010 0.000010 0.000010 0.000011 0.0000011 0.0000011 0.0000011 0.0000011	0.0000010 0.000010 0.0000010 0.0000010 0.0000010 0.0000011 0.0000011 0.0000011 0.0000011 0.0000011	0.00000100 0.0000100 0.00000100 0.00000100 0.00000870 0.00000950 0.00000950 0.00000950 0.00000950 0.00001100 0.00000980	0.00000064 0.00000058 0.00000056 0.00000036 0.00000110 0.00000110 0.00000110 0.00000110 0.00000100	0.0000100 0.0000100 0.0000100 0.0000100 0.00000100 0.00000900 0.0000950 0.0000950 0.0000950 0.0000980	0.0000090 0.0000100 0.0000097 0.0000097 0.00002900 0.0002900 0.00023400 0.0003400 0.0003400
Water Water Water	81603 81604 81605	Site Water Sample 1 Total Sample 2 Total Sample 3 Total	0.00000100 0.00000140 0.00000130	0.0000010 0.0000010 0.0000010	0.0000010 0.0000010 0.0000010	0.00000100 0.00000100 0.00000100	0.00000054 0.00000049 0.00000038	0.00000100 0.00000100 0.00000100	0 00000110 0.00000140 0.00000150
Water Water Water Water Water Water	81609 81610 81611 81606 61607 81608	Elutriate Sample 1 Dissolved Sample 2 Dissolved Sample 1 Total Sample 2 Total Sample 2 Total Sample 3 Total	0.00000110 0.0000160 0.0000150 0.0000100 0.0000100 0.0000100	0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	0.00000100 0.00000100 0.0000100 0.0000100 0.0000100 0.0000100	0.00000052 0.00000063 0.00000100 0.00000100 0.00000100	0.00000100 0.0000100 0.0000100 0.0000100 0.0000100 0.0000100	0.00000120 0.00000075 0.00000000 0.00000075 0.00000083 0.00000079
SAMPLE	SAMPLE	DESCRIPTION	PCB 70	PCB 77	PCB 82	PCB 86	PCB 87	PCB 97	PCB 101
		Detection Limit (mg/kg)	0.00077	0.00077	0.00077	0.00077	0.00077	0.00077	0 00077
Sediment Sediment Sediment	81717 81718 81719	Insitu Sediment Sample #1 Sample #2 Sample #3	0 00210 0 00200 0 00180	0.00077 0.00077 0.00077	0.00077 0.00077 0.00077	0.00077 0.00077 0.00077	0.00077 0.00077 0.00077	0.00077 0.00077 0.00077	0,00100 0,00120 0,00100
BOLD - le Values be	ss than valu low less tha	ues in values are estimated results. Resu	lts are less than the	reporting limit.					
					<u></u>				
				Page	7				

		Delaware River Water Analysis (Fine	Grained Site)						
SAMPLE	SAMPLE	DESCRIPTION	PCB 105	PCB 114	PCB 118	PCB 121	PCB 128	PCB 136	PCB 137
		Detection Limit (mg/l)	0.00000110	0.00000110	0 00000110	0.0000011	0.0000011	0.0000011	0.0000011
		Plume Monitoring							
Water	80983	Background, dissolved	0.00000041	0.00000100	0.00000077	0.0000010	0.0000010	0.0000010	0.0000010
Water	80948	Background, total	0.00000110	0.00000110	0.00000110	0.0000011	0.0000011	0.0000011	0.0000011
Water	80984	0-10 min, overflow, dissolved	0.00000037	0.00000066	0.00000051	0.0000010	0.0000010	0.0000010	0.0000010
Water	80985	10-20 min, overflow, dissolved	0.00000110	0.00000110	0.00000064	0.0000011	0.0000011	0.0000011	0.0000011
Water	80986	20-30 min, overflow, dissolved	0.00000041	0 00000060	0.00000045	0.0000010	0.0000010	0.0000010	0.0000010
Water	80949	0-10 min, overflow, total	0.00000100	0.00000100	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010
Water	80950	10-20 min, overflow, total 20-30 min, overflow, total	0.00000100	0.00000100	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010
YY GOOD	00001	20 00 milly evening role							
Water	80987	0-10 min, non-overflow, dissolve	0.00000100	0.00000074	0.00000050	0.0000010	0.0000010	0.0000010	0.0000010
Water	80988	10-20 min, non-overflow, dissolve	0.00000040	0.00000100	0.00000046	0.0000010	0.0000010	0.0000010	0.0000010
Water	80052	0.10 min, non-overflow, dissolve	0.00000100	0.00000100	0 00000100	0.0000010	0.0000010	0.0000010	0.0000010
Water	80953	10-20 min, non-overflow, total	0.00000100	0.00000100	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010
Water	80954	20-30 min, non-overflow, total	0.00000100	0.00000100	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010
		Hopper Inflow Monitoring						1.1000	
Water	81104	3& 6 min, dissolved	0.00000041	0.00000100	0.00000054	0.0000010	0.0000010	0.0000010	0.0000010
Water	81105	9&12 min, dissolved	D.0000056	0.00000100	0.00000045	0.0000010	0.0000010	0.0000010	0.0000010
Water	81106	15&18 min, dissolved	0.00000035	0.00000100	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010
Water	81107	27820 min, dissolved	0.00000043	0.00000100	0.00000000	0.0000010	0.0000010	0.0000010	0.0000010
Water	80891	38. 6 min total	0.00000110	0.00000110	0.00000750	0.0000011	0.0000011	0.0000011	0.0000011
Water	80892	9&12 min. total	0.00000100	0.00000100	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010
Water	80893	15&18 min, total	0.00000100	0.00000100	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010
Water	80894	21&24 min, total	0.00000110	0.00000110	0.00000110	0.0000011	0.0000011	0.0000011	0.0000011
Water	80895	27&30 min, total	0.00000110	0.00000110	0 00001900	0.0000011	0.0000011	0.0000011	0.0000011
		Access American and an and a							
		Hopper Overflow Monitoring			-				
Water	81109	2& 4 min, dissolved	0.00000047	0.00000100	0.00000065	0.0000010	0.0000010	0.0000010	0.0000010
Water	81110	6& 8 min, dissolved	0.00000090	0.00000100	0.00000065	0.0000010	0.0000010	0.0000010	0.0000010
Water	81117	14816 min dissolved	0.00000036	0.00000100	0.00000068	0.0000010	0.0000010	0.0000010	0.0000010
Water	81113	18&20 min dissolved	0.00000055	0.00000100	0.00000094	0.0000010	0.0000010	0.0000010	0.0000010
Water	80897	2& 4 min, total	0.00000110	0.00000110	0.00002400	0.0000011	0.0000011	0.0000011	0.0000011
Water	80898	6& 8 min, total	0.00000110	0.00000110	0.00002300	0.0000011	0.0000011	0.0000011	0.0000011
Water	80899	10&12 min, total	0.00000110	0.00000110	0.00003000	0.0000011	0.0000011	0.0000011	0.0000011
Water	80900	14&16 min, total	0.00000110	0.00000110	0.00003800	0.0000011	0.0000011	0.0000011	0.0000011
Water	80901	18&20 min, total	0.00000100	0.00000100	0.00003200	0.0000010	0.0000010	0.0000190	0.0000010
		Cita Mator							
Water	81603	Sample 1 Total	0.00000043	0.00000140	0.00000096	0.0000010	0.0000010	0.0000010	0.0000010
Water	81604	Sample 2 Total	0.0000054	0.00000140	0.00000093	0.0000010	0.0000010	0.0000010	0.0000010
Water	81605	Sample 3 Total	0.0000050	0.00000120	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010
		PL 45 1							
Mater	81600	Sample 1 Dissolved	0.0000067	0.00000100	0.0000058	0.0000010	0.0000010	0.0000010	0.0000010
Water	81610	Sample 7 Dissolved	0.00000054	0.00000100	0.00000048	0.0000010	0.0000010	0.0000010	0.0000010
Water	81611	Sample 2 Dissolved	0.00000042	0.00000100	0.00000052	0.0000010	0.0000010	0.0000010	0.0000010
Water	81606	Sample 1 Total	0.00000068	0.00000100	0 00000120	0.0000010	0.0000010	0.0000010	0.0000010
Water	81607	Sample 2 Total	0.00000071	0.00000100	0.00000130	0.0000010	0.0000010	0.0000010	0.0000010
Water	81608	Sample 3 Total	0.0000064	0.00000100	0.00000100	0.0000010	0.0000010	0.0000010	0.0000010
	CAUSE C	DESODIDITION	000 105	000 114	000 440	000 101	DCD 100	DCD 100	DOD 107
TYPE	ID	DESCRIPTION	PGB 105	PCB 114	PGB 118	PCB (2)	PCB 120	PCB 130	POD 13/
		Detection Limit (mg/kg)	0.00077	0.00077	0.00077	0.00077	0.00077	0 00077	0.00077
		Insitu Sediment							
Sediment	81717	Sample #1	0.00077	0.00077	0.00098	0.00077	0.00077	0,00077	0.00077
Sediment	81718	Sample #2	0.00077	0.00077	0.00110	0.00077	0.00077	0.00077	0.00077
Sediment	81719	Sample #3	0.00077	0.00077	0.00100	0.00077	0.00077	0.00077	0.00077
BOLD - le Values be	ss than vali low less tha	ues an values are estimated results. Resu	ilts are less than th	e reporting limit.					

Page 8

PCBsfine

PCBsfine	

		Delaware River Water Analysis (Fine	-Grained Site)						
SAMPLE TYPE	SAMPLE	DESCRIPTION	PCB 138	PCB 141	PCB 151	PCB 153	PCB 156	PCB 167	PCB 170
		Detection Limit (mg/l)	0.00000110	0.0000011	0.0000011	0,0000011	0.00000110	0.0000011	0.0000011
Water	20022	Plume Monitoring	0.0000100	0.0000010	0 0000010	0.0000010	0.00000100	0.0000010	0 0000010
Water	80948	Background, total	0.00000045	0.0000011	0.0000011	0.0000011	0.00000110	0.0000011	0.0000011
Water	80984	0-10 min, overflow, dissolved	0.00000100	0.0000010	0.0000010	0.0000010	0.00000030	0.0000010	0.0000010
Water	80985	20-30 min, overflow, dissolved	0.00000100	0.0000010	0.0000010	0.0000010	0.00000100	0.0000011	0.0000010
Water	80949	0-10 min, overflow, total	0.00000077	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010
Water Water	80950 80951	10-20 min, overflow, total 20-30 min, overflow, total	0.00000066	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010
Water	80987	0-10 min, non-overflow, dissolve	0.00000100	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010
Water	80988	10-20 min, non-overflow, dissolve	0.00000100	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010
Water	80989	20-30 min, non-overflow, dissolve	0.00000100	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010
Water	80952	10-20 min, non-overflow, total	0.00000057	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010
Water	80954	20-30 min, non-overflow, total	0.00000045	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010
		Hopper Inflow Monitoring							
Water	81104	3& 6 min, dissolved	0.00000100	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010
Water	81105	9&12 min, dissolved	0.00000100	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010
Water	81106	21824 min, dissolved	0.00000100	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010
Water	81108	27&30 min, dissolved	0.00000100	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010
Water	80891	3& 6 min, total	0.00001400	0.0000011	0.0000027	0.0000011	0.00000110	0.0000011	0.0000011
Water	80892	9&12 min, total 15&18 min, total	0.00003400	0.0000010	0.0000058	0.0000010	0.00000100	0.0000010	0.0000010
Water	80894	21&24 min, total	0.00002400	0.0000011	0.0000045	0.0000011	0 00000350	0.0000021	0.0000086
Water	80895	27&30 min, total	0.00000110	0.0000011	0.0000089	0.0000011	0.00000110	0.0000011	0.0000011
		Hopper Overflow Monitoring							
Water	81109	2& 4 min, dissolved	0.00000100	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010
Water	81110	10812 min, dissolved	0.00000100	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010
Water	81112	14&16 min, dissolved	0.00000100	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010
Water	81113	18&20 min, dissolved	0.00000100	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010
Water	80897	2& 4 min, total	0.00000110	0.0000010	0.0000098	0.0000011	0.00000110	0.0000011	0.0000011
Water	80899	10812 min, total	0.00000110	0.0000010	0.0000120	0.0000011	0.00000790	0.0000011	0.0000011
Water	80900	14&16 min, total	0.00000110	0.0000010	0.0000190	0.0000011	0.00001200	0.0000011	0.0000011
Water	80901	18&20 min, total	0.00000100	0.0000010	0,0000110	0.0000010	0.00000790	0.0000010	0.0000010
ALC: N		Site Water		0.0000040	0.0000040	0.0000040	0 00000400	0.0000010	0.0000010
Water	81603	Sample 1 Total Sample 2 Total	0.00000100	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010
Water	81605	Sample 3 Total	0.00000100	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010
		Elutriate							
Water	81609	Sample 1 Dissolved	0.00000100	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010
Water	81610	Sample 2 Dissolved	0.00000100	0.0000010	0.0000010	0.0000010	0.00000100	0.0000010	0.0000010
Water	81606	Sample 1 Total	0.00000100	0.0000010	0.0000010	0.0000012	0.00000100	0.0000010	0.0000010
Water	81607	Sample 2 Total	0.00000100	0.0000010	0.0000010	0.0000012	0.00000100	0.0000010	0.0000010
Water	81608	Sample 3 Total	0,00000100	0.0000010	0.0000010	0.0000013	0.00000100	0.0000010	0.0000010
SAMPLE	SAMPLE	DESCRIPTION	PCB 138	PCB 141	PCB 151	PCB 153	PCB 156	PCB 167	PCB 170
		Detection Limit (mg/kg)	0.00077	0.00077	0.00077	0 00077	0.00077	0 00077	0.00077
	04747	Insitu Sediment	0.00077	0.00077	0.00077	0.00150	0 00077	0.00077	0 00077
Sediment	81/1/	Sample #1 Sample #2	0.00077	0.00077	0.00077	0.00077	0.00077	0.00077	0.00077
Sediment	81719	Sample #3	0.00077	0.00077	0.00077	0.00077	0.00077	0.00077	0.00077
BOLD - le	ss than valu	Jes							
Values be	low less that	an values are estimated results. Resu	Its are less than the	reporting limit.					
				Page	9				

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PCBsfine Delaware River Water Analysis (Fine-Grained Site)

SAMPLE	SAMPLE	DESCRIPTION	PCB 171	PCB 180	PCB 182	PCB 183	PCB 185	PCB 187	PCB 189
		Detection Limit (mg/l)	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011
		Plume Monitoring							
Water Water	80983 80948	Background, dissolved Background, total	0.0000010 0.0000011	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
					0.000000.0		1.2000000		
Water	80984	0-10 min, overflow, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	80985	10-20 min, overflow, dissolved	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011
Water	80986	20-30 min, overflow, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	80949	0-10 min, overflow, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	80950	10-20 min, overflow, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
water	80951	20-30 min, overnow, total	0.0000010	0.0000010	0.000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	80987	0-10 min non-overflow dissolve	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	80988	10-20 min, non-overflow, dissolve	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	80989	20-30 min, non-overflow, dissolve	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	80952	0-10 min, non-overflow, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	80953	10-20 min, non-overflow, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	80954	20-30 min, non-overflow, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
		Hopper Inflow Monitoring							
Water	81104	3& 6 min. dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	81105	9&12 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	81106	15&18 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	81107	21824 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	81108	27&30 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	80891	38 6 min, total	0.0000012	0.0000011	0.0000011	0.0000029	0.0000046	0.0000092	0.0000011
Water	80892	9&12 min, total	0.0000034	0.0000010	0.0000010	0.0000068	0.0000010	0.0000210	0.0000010
Water	80893	15&18 min, total	0.0000022	0.0000010	0.0000010	0.0000038	0.0000010	0.0000140	0.0000010
Water	80894	21824 min, total	0.0000011	0.0000280	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011
Water	80895	27830 min, total	0.0000011	0.0000490	0.0000011	0.0000022	0.0000011	0.0000011	0.0000011
		Hopper Overflow Monitoring							
Water	81109	2& 4 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	81110	6& 8 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	81111	10&12 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	81112	14&16 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	81113	18&20 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	80897	2& 4 min, total	0.0000011	0.0000590	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011
Water	80898	6& 8 min, total	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011
Water	80899	10812 min, total	0.0000069	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011
Water	80900	14&16 min, total	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0,0000011
vyater	80901	18620 min, total	0.0000010	0.000010	0.000010	0.0000010	0.0000010	0.000010	0.000010
Sec	04000	Site Water	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	01003	Sample 1 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	81605	Sample 2 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
THORE	01000	Sample of Islan							
		Elutriate							
Water	81609	Sample 1 Dissolved	0.0000010	0 0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	81610	Sample 2 Dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	81611	Sample 3 Dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	81606	Sample 1 Total	0.0000010	0.0000016	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	81607	Sample 2 Total	0.0000010	0.0000018	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Water	81608	Sample 3 Total	0.0000010	0 0000016	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
SAMPLE	SAMPLE	DESCRIPTION	PCB 171	PCB 180	PCB 182	PCB 183	PCB 185	PCB 187	PCB 189
TYPE	ID								
		Detection Limit (mg/kg)	0,00077	0.00077	0 00077	0.00077	0.00077	0.00077	0.00077
		Insitu Sediment							
Sediment	81717	Sample #1	0.00077	0.00150	0.00077	0.00077	0.00077	0.00077	0.00077
Sediment	81718	Sample #2	0.00077	0 00140	0.00077	0.00077	0.00077	0.00077	0.00077
Sediment	81719	Sample #3	0.00077	0 00160	0.00077	0.00077	0.00077	0.00100	0.00077
BOLD - les	ss than valu	Jes							
Values be	low less tha	an values are estimated results. Resul	ts are less than the	reporting limit					
				Page	10				

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	PCBsfine
Delaware River Water Analysis (Fine-Grained Site)	

ID	DESCRIPTION	PCB 191	PCB 194	PCB 195	PCB 196	PCB 201	PCB 203	PCB 205
	Detection Limit (mg/l)	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011
	Plume Monitoring							
80983	Background dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
80948	Background, total	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011
80984	0-10 min overflow dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0 0000010
80985	10-20 min overflow dissolved	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011	0.0000011
80986	20-30 min overflow dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
80949	0-10 min, overflow, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
80950	10-20 min, overflow, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
80951	20-30 min, overflow, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
80987	0-10 min, non-overflow, dissolve	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
80988	10-20 min, non-overflow, dissolve	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
80989	20-30 min. non-overflow, dissolve	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
80952	0-10 min, non-overflow, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
80953	10-20 min, non-overflow, total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
80954	20-30 min, non-overflow, total	0,0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
	Honper Inflow Monitoring							
81104	3& 6 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
81105	9&12 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
81106	15&18 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
81107	21&24 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
81108	27830 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
80891	3& 6 min, total	0.0000011	0.0000011	0.0000090	0.0000026	0.0000011	0.0000011	0.000001
80892	9&12 min, total	0.0000010	0.0000010	0.0000026	0.0000065	0.0000010	0.0000010	0.000001
80893	15&18 min, total	0.0000010	0.0000010	0.0000016	0.0000039	0.0000010	0.0000010	0.000001
80894	21&24 min, total	0.0000011	0.0000011	0.0000011	0.0000036	0.0000011	0.0000011	0.000001
80895	27&30 min, total	0.0000011	0.0000011	0.0000011	0.0000080	0.0000011	0.0000011	0.0000011
	Honner Overflow Monitoring							
81109	28 4 min dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
81110	6& 8 min dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
81111	10&12 min. dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
81112	14&16 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
81113	18&20 min, dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
80897	2& 4 min, total	0.0000011	0.0000011	0.0000041	0.0000110	0.0000011	0.0000011	0.000001
80898	6& 8 min, total	0.0000011	0.0000011	0.0000081	0.0000067	0.0000011	0.0000011	0.000001
80899	10812 min, total	0.0000011	0.0000011	0.0000044	0.0000100	0.0000011	0.0000011	0,000001
80900	14&16 min, total	0.0000011	0.0000011	0.0000110	0.0000190	0.0000011	0.0000011	0.000001
00301	Todazo ((iii), total	0.0000010	0.0000010	0.0000100	0.0000007	0.0000010	0.0000010	0.0000010
	Site Water				6			
81603	Sample 1 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
81604	Sample 2 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
81605	Sample 3 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
	Elutriate							
81609	Sample 1 Dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
81610	Sample 2 Dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
81611	Sample 3 Dissolved	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
81606	Sample 1 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
81607	Sample 2 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.000001
81608	Sample 3 Total	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
LE SAMPLE	DESCRIPTION	PCB 191	PCB 194	PCB 195	PCB 196	PCB 201	PCB 203	PCB 20
ID	de setos tratit							
	Detection Limit (mg/kg)	0.00077	0.00077	0 00077	0 00077	0.00077	0 00077	0.0007
	Insitu Sediment	0 00077	0.00077	0.00077	0.00077	0 00077	0 00077	0.0007
ent 01/1/	Sample #1	0.00077	0.00077	0.00077	0.00077	0.00077	0.00077	0.0007
ient 81719	Sample #3	0.00077	0.00077	0.00077	0 00025	0.00077	0 00084	0.00077
ient 81717 ient 81718 ient 81719	insitu Sedimi Sample #1 Sample #2 Sample #3	ent	ent 0.00077 0.00077 0.00077	ent 0.00077 0.00077 0.00077 0.00077 0.00077 0.00077 0.00077 0.00077	ent 0.00077 0.00077 0.00077 0.00077 0.00077 0.00077 0.00077 0.00077 0.00077	ent 0.00077 0.00077 0.00077 0.00077 0.00077 0.00077 0.00077 0.00033 0.00077 0.00077 0.00077 0.00025	ent 0.00077 0.00077 0.00077 0.00077 0.00077 0.00077 0.00077 0.00077 0.00033 0.00077 0.0007	ent 0.00077 0.00077 0.00077 0.00077 0.00077 0.00077 0.00077 0.00077 0.00077 0.00077 0.00077 0.00082 0.00077 0.00082 0.00077 0.00082 0.00077 0.00084

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MPLE BAMPLE DESCRIPTION PCB 207 PCB 207 <t< th=""><th></th><th></th><th>Delaware River Water Analysis (Fine-</th><th>Grained Site)</th><th></th><th></th><th></th><th></th><th></th><th></th></t<>			Delaware River Water Analysis (Fine-	Grained Site)						
Detection Limit (mgf) 0.0000110 0.0000110 0.00000110 0.0000110 0.00		SAMPLE	DESCRIPTION	PCB 206	PCB 207	PCB 208	PCB 209	PCB 66	PCB 190	PCB
Funce Monotrong tatler Funce Monotrong Background, Istali 0.0000025 0.0000025 0.00000130 106.45% 0.0000011 0.00000011 0.0000011 0.0000011			Detection Limit (mg/l)	0.0000011	0.00000110	0.00000110		0.0000011	0.0000011	0.0000
atte BB33 Background, dissolved 0.0000017 0.0000018 0.0000011			Plume Monitoring							
Barter S0944 0.19 min powerflow, data/ved 0.0000027 0.0000071 0.00000071 0.00000071 0.00000071<	later later	80983 80948	Background, dissolved Background, total	0.0000625 0.0000017	0.00000095	0.00000130	106.45% 74.06%	0.0000010 0.0000011	0.0000010	0.0000
etage B0965 10.20 mm, overflow, data/hetal 0.0000270 0.00000110 0.00000114 0.00000114 0.00000114 0.00000110 0.000000110 0.00000110 <	/ater	80984	0-10 min, overflow, dissolved	0.0000024	0.00000090	0.00000150	92.43%	0.0000010	0.0000010	0.0000
affer B356 23-30 mm, overflow, datached 0.0000230 0.0000110 0.00000010 0.00000010 0.00000010 0.00000010 0.00000010 0.00000010 0.00000010 0.00000010 0.00000010 0.000000000 0.00000000000000000000000000000000000	ater	80985	10-20 min, overflow, dissolved	0.0000027	0.00000110	0.00000170	100.50%	0.0000011	0.0000011	0.0000
min bitspin 0.0000000 0.00000000 0.00000000 0.000000000 0.000000000 0.000000000 0.000000000 0.000000000 0.000000000 0.000000000 0.000000000 0.000000000 0.000000000 0.000000000 0.000000000 0.00000000000000000000000000000000000	/aler /ater	80986	20-30 min, overflow, dissolved	0.0000026	0.00000110	0.00000140	99 77%	0.0000010	0.0000010	0.0000
else 20351 20.30 min_overflow, total 0.0000020 0.0000008 61.38% 0.0000010 0.0000018 0.0000110 0.00000110 0.00000110 0.00000110 0.00000110 0.00000110 0.00000110 0.00000110 0.00000101 0.00000110 0.00000111 0.00000110	ater	80950	10-20 min, overflow, total	0.0000020	0.00000100	0.00000085	75.26%	0.0000010	0.0000010	0.0000
Inter 9967 D-10 min, por-wertlew, disadve D 0000024 D 00000154 D 10 dis 34 D 0000016 C 0000016 C 0000016 C 0000017 Bite B6565 D-10 min, por-wertlew, disadve D 0000024 D 00000170 D 00000170 D 0000016 C 0000016 C 0000016 C 0000017 D 00000170 D 00000	ater	80951	20-30 min, overflow, total	0.0000020	0.00000100	0.00000089	81.36%	0.0000010	0.0000010	0.0000
atter B398 10.30 mm, nor-werflow, disalve 0.0000025 0.00000174 0.00000130 104.87% 0.0000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.0000100 0.0000010 0.0000100 0.00000100 0.00000100 0.00000100 0.00000100 0.00000100 0.00000100 0.00000100 <	ater	80987	0-10 min, non-overflow, dissolve	0.0000026	0.00000095	0.00000140	101.88%	0.0000010	0.0000010	0.0000
Bits Bits Constraint	ater	80988	10-20 min, non-overflow, dissolve	0.0000025	0.00000074	0.00000130	104.87%	0.0000010	0.0000010	0.0000
Bits 20053 10:20 mm, non-overflow, total 0.0000017 0.00000100 0.00000013 B7 73% 0.0000010 0.0000011 0.0000010 0.0000011 0.0000010 0.0000011 0.0000010 0.0000011 0.0000011 0.0000011 0.0000011 0.0000011 0.0000011 0.0000011 0.0000011 0.0000011 0.0000011 0.0000011 0.0000011	ater	80989	20-30 min, non-overflow, dissolve	0.0000016	0.00000071	0.00000120	80.06%	0.0000010	0.0000010	0.0000
ater 80554 20-30 min, non-overflow, total 0.0000017 0.0000003 87.12% 0.0000010 0.0000010 0.0000010 ater 811104 35.6 mm, disadved 0.0000016 0.00000057 90.019% 0.0000010 0.000001	ater	80953	10-20 min, non-overflow, total	0.0000017	0.00000100	0.00000075	88.73%	0.0000010	0.0000010	0.0000
Hopper Inflow Monitoring 0.0000016 0.0000007 80.09% 0.000010 0.00000010 0.0000010 0.00000010 <td>ater</td> <td>80954</td> <td>20-30 min, non-overflow, total</td> <td>0.0000017</td> <td>0.00000100</td> <td>0.0000083</td> <td>87.12%</td> <td>0.0000010</td> <td>0.0000010</td> <td>0.0000</td>	ater	80954	20-30 min, non-overflow, total	0.0000017	0.00000100	0.0000083	87.12%	0.0000010	0.0000010	0.0000
ether 81104 35 mm, dissolved 0.0000016 0.00000074 90.03% 0.0000010 0.0000010 0.000 eter 81106 153.15 mm, dissolved 0.0000019 0.0000005 0.00000010 0.0000010 0.000 0.000 0.0000010			Hopper Inflow Monitoring							
ater 81105 98.421 min, dissolved 0.000019 0.0000019 0.0000019 0.0000010 0.000 atter 81106 153.18 min, dissolved 0.0000015 0.0000015 0.73.44% 0.0000010 0.000 atter 81107 21.62.4 min, dissolved 0.0000017 0.00000150 73.34% 0.0000010 0.000 atter 81007 21.62.4 min, dissolved 0.0000110 0.0000110 0.000 atter 80081 3.8.5 min, total 0.000019 0.000010 0.000 atter 80084 27.630 min, total 0.0000190 0.0000100 108.05% 0.0000011 0.000011 0.000011 0.0000010 0.000 atter	ater	81104	3& 6 min, dissolved	0.0000016	0.00000049	0.00000077	90.09%	0.0000010	0.0000010	0.0000
ater 91106 153.5 mm, dissolved 0.000019 0.0000015 0.0000010 0.44% 0.0000010 0.0000011 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.	ater	81105	9&12 min, dissolved	0.0000019	0.00000056	0.0000087	86,49%	0.0000010	0.0000010	0.0000
atter B1100 2/32.01ml (ussolved) 0.0000017 0.00000054 0.0000017 0.0000011 0.00000011 0.00000011 0.00000011 0.00000011 0.00000011 0.00000011 0.00000011 0.0000011 0.0000011 0.0000011 0.0000011 0.0000011 0.0000011 0.00000011 <td>ater</td> <td>81106</td> <td>15&18 min, dissolved</td> <td>0.0000019</td> <td>0.00000040</td> <td>0.00000150</td> <td>87.34%</td> <td>0.0000010</td> <td>0.0000010</td> <td>0.0000</td>	ater	81106	15&18 min, dissolved	0.0000019	0.00000040	0.00000150	87.34%	0.0000010	0.0000010	0.0000
atter B0391 38.6 mm, total 0.0000410 0.0000010 57.65% 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000011 0.00000011 0.0000011 0.0	ater	81108	27&30 min. dissolved	0.0000017	0 00000054	0.00000094	72.89%	0.0000010	0.0000010	0.0000
ater 80852 38.12 min, total 0.0000950 0.00000550 0.0000050 0.0000010 58.62% 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000011 0.0000010 0.00000010 0.00000010 0.00000010 0.00000010 0.00000010 0.00000010 0.00000010 0.00000010 0.00000010 0.00000010 0.00000010 0.0000000000 0.00000000000000000000000000000000000	ater	80891	3& 6 min, total	0.0000410	0.00000280	0.00001700	97.66%	0.0000011	0.0000011	0.0000
ater 60983 158.19 mm, fotal 0.00000580 0.00000790 0.0000700 108.53% 0.0000071	ater	80892	9&12 min, total	0.0000900	0.00000530	0.00004100	58.62%	0.0000010	0.0000010	0.0000
Bits Doss 21242 min, total 0.0000920 0.00000620 0.0000010 124 79% 0.0000011 0.0000011 0.0000011 0.0000011 0.0000011 0.0000011 0.0000011 0.0000011 0.0000011 0.0000011 0.0000011 0.0000011 0.0000011 0.0000011 0.0000011 0.0000011 0.0000011 0.0000011 0.0000010 0.0000011 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.	ater	80893	15&18 min, total	0.0000580	0.00000650	0.00002500	108.63%	0.0000010	0.0000010	0.0000
Hopper Overflow Monitoring tater Hopper Overflow Monitoring 2.8.4 mm, dissolved D 0000019 0 00000051 B1 54% 0.0000010 0.0000011 0.0000010 0.0000010 0.0000010 0.0000010	ater	80895	27&30 min, total	0.0000920	0.00000620	0.00004000	124.79%	0.0000011	0.0000011	0.0000
Site Water ater Site Water 81605 Sample 1 Total 0.0000018 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000011 0.00000000 0.0000010 0.000001			Hannar Quadlaw Manitarina							
star 81110 58.8 min, dissolved 0.0000016 0.0000017 0.0000017 0.0000017 0.0000017 0.0000017 0.0000017 0.0000017 0.0000017 0.0000016 0.0000017 0.0000017 0.0000017 0.0000017 0.0000017 0.0000017 0.0000016 0.0000017 0.0000017 0.0000017 0.0000017 0.0000016 0.0000017 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000011 0.00000011 0.0000011 0.0000	ater	81109	28 4 min dissolved	0 0000019	0 00000037	0 0000061	81 94%	0.0000010	0.0000010	0.000
ater 81111 10812 min, dissolved 0.0000017 0.0000010 0.0000011 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	ater	81110	6& 8 min, dissolved	0.0000016	0.00000100	0.00000061	78.71%	0.0000010	0.0000010	0.0000
ater 81112 14216 mm, dissolved 0.0000013 0.00000143 0.0000017 6.18% 0.0000010 0.0000010 0.0000011 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010	ater	81111	10&12 min, dissolved	0.0000017	0.00000100	0.0000084	88.72%	0.0000010	0.0000010	0.0000
atter 01113 Datz 0 mm, total 0.0000014 0.0000011 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 <th< td=""><td>ater</td><td>81112</td><td>14&16 min, dissolved</td><td>0.0000018</td><td>0.00000043</td><td>0.0000086</td><td>83.24%</td><td>0.0000010</td><td>0.0000010</td><td>0.0000</td></th<>	ater	81112	14&16 min, dissolved	0.0000018	0.00000043	0.0000086	83.24%	0.0000010	0.0000010	0.0000
ater 80898 68, 8 mm, total 0.0001200 0.0000720 0.00005100 213.25% 0.0000011 0.	ater	80897	28 4 min total	0.0001700	0.00000960	0.00007400	220.34%	0.0000011	0.0000011	0.0000
ater 80899 108.12 min, total 0.0001200 0.00000800 0.00005800 216.74% 0.0000011 0.0000011 0.000010 0.0000 ater 80901 148.16 min, total 0.0001200 0.00005800 216.74% 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000	ater	80898	6& 8 min, total	0.0001200	0.00000720	0 00005100	213.26%	0.0000011	0.0000011	0.0000
ater 80900 148.16 min, total 0.0001300 0.00005800 216.74% 0.0000011 0.0000011 0.000011 0.000011 0.000011 0.000011 0.000011 0.000011 0.000011 0.000011 0.000011 0.000011 0.000011 0.000010 0.0000010 0.0000010 0.0000010 <td>ater</td> <td>80899</td> <td>108.12 min, total</td> <td>0.0001200</td> <td>0.00000860</td> <td>0 00005200</td> <td>175.12%</td> <td>0.0000011</td> <td>0.0000011</td> <td>0.0000</td>	ater	80899	108.12 min, total	0.0001200	0.00000860	0 00005200	175.12%	0.0000011	0.0000011	0.0000
Site Water ater Site Water B1603 Sample 1 Total Sample 2 Total 0.0000028 0.0000022 0.0000062 0.00000100 0.000010 0.00000092 0.0000010 90.23% 0.0000010 0.0000010 0.00000010 0.00000010 0.0000010 <td>ater ater</td> <td>80900 80901</td> <td>14&16 min, total 18&20 min, total</td> <td>0.0001300 0.0001200</td> <td>0.00001000 0.00000840</td> <td>0.00005800</td> <td>216.74% 186.63%</td> <td>0.0000011 0.0000010</td> <td>0.0000011 0.0000010</td> <td>0.0000</td>	ater ater	80900 80901	14&16 min, total 18&20 min, total	0.0001300 0.0001200	0.00001000 0.00000840	0.00005800	216.74% 186.63%	0.0000011 0.0000010	0.0000011 0.0000010	0.0000
Site Water Occord Oco										
ater 81604 Sample 2 Total 0.0000124 0.0000100 0.0000100 90.51% 0.0000010 0.000010	ater	81603	Site Water Sample 1 Total	0.0000028	0.00000062	0 00000110	101.92%	0.0000010	0.0000010	0.0000
ater 81605 Sample 3 total 0.0000022 0.0000002 90.22% 0.000010 0.0000010 0.00000000000000000000000000000000000	ater	81604	Sample 2 Total	0.0000024	0.00000100	0.00000100	90 51%	0.0000010	0.0000010	0.0000
Elutriate Elutriate ater 81609 Sample 1 Dissolved 0.0000018 0.00000027 0.00000025 96.44% 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.00000010 0.0000010 0.0000010	ater	81605	Sample 3 Total	0.0000022	0.00000100	0.00000092	90.22%	0.0000010	0.0000010	0.0000
atter B1609 Sample 1 Dissolved 0.0000018 0.0000058 B6.71% 0.0000010 0.0000010 0.000 atter B1610 Sample 2 Dissolved 0.0000021 0.00000029 0.00000058 96.44% 0.0000010 0.000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.0000010 0.000010 0.0000010 0.0000010 0.0000010			Elutriate							
and the distribution distr	ater	81609	Sample 1 Dissolved	0.0000018	0.00000027	0.00000058	85.71%	0.0000010	0.0000010	0.0000
ater 81606 Sample 1 Total 0.0000052 0.00000059 0.00000270 91 62% 0.0000010 0.000010 0.000 ater 81607 Sample 2 Total 0.0000052 0.00000068 0.00000270 91 62% 0.0000010 0.000 0.000 0.0000010 0.000 0.000 0.0000010 0.000 0.000 0.0000010 0.000 0.000 0.0000010 0.000 0.000 0.000 0.000 0.0000010 0.000	ater	81610	Sample 2 Dissolved	0.0000021	0.00000029	0.00000078	101 29%	0.0000010	0.0000010	0.0000
ater 81607 Sample 2 Total 0.000051 0.0000100 0.0000270 90.36% 0.0000010 0.0000071 0.0000	ater	81606	Sample 1 Total	0.0000052	0.00000059	0.00000270	91 62%	0.0000010	0.0000010	0.0000
MPLE SAMPLE DESCRIPTION PCB 206 PCB 207 PCB 208 PCB 209 PCB 66 PCB 190 PCB 207 PCB 208 PCB 209 PCB 66 PCB 190 PCB 207 PCB 208 PCB 209 PCB 66 PCB 190 PCB 208 PCB 209 PCB 208 PCB 209 PCB 66 PCB 190 PCB 208 PCB 209 PCB 207 0 00077 0 0 0 00077 0 0 0 00077 0 0 0 00077 0 0 0 00077 0 0 0 00077 0 0 0	ater ater	81607 81608	Sample 2 Total Sample 3 Total	0.0000051 0.0000052	0.00000100	0.00000270 0.00000280	90.36% 88.68%	0.0000010 0.0000010	0.0000010 0.0000010	0.0000
IMPLE SAMPLE DESCRIPTION PCB 206 PCB 207 PCB 208 PCB 209 PCB 66 PCB 190 PCB PE ID Detection Limit (mg/kg) 0.00077 0.										-
Detection Limit (mg/kg) 0.00077	PE	SAMPLE	DESCRIPTION	PCB 206	PCB 207	PCB 208	PCB 209	PCB 66	PCB 190	PCB
Instlu Sediment 0.00390 0.00048 0.00220 105.21% 0.00077 0.00077 0.00 diment 81717 Sample #1 0.00120 0.00077 0.00210 105.21% 0.00077 0.00077 0.0 diment 81719 Sample #3 0.00370 0.00077 0.00180 98.01% 0.00077 0.00177 0.0			Detection Limit (mg/kg)	0.00077	0 00077	0 00077		0.00077	0.00077	0.00
diment 01/07 Sample #1 0.00290 0.00220 105/21% 0.00077 0.00077 0.0 diment 81718 Sample #2 0.00120 0.00077 0.00210 105/19% 0.000077 0.00 diment 81719 Sample #3 0.00370 0.00017 0.00180 98.01% 0.000077 0.00			Insitu Sediment				100 000	1000		
alment 817/9 Sample #3 0.00370 0.00077 0.00180 98.01% 0.00077 0.00077 0.0	diment	81717	Sample #1 Sample #2	0.00390	0.00048	0.00220	105.21%	0.00077	0.00077	0.00
	diment	81719	Sample #3	0.00370	0.00077	0.00180	98.01%	0.00077	0.00077	0.00

Delaware River Water Analysis (Fine-Grained Site)

SAMPLE TYPE	SAMPLE	DESCRIPTION	PCB 200
		Detection Limit (mg/l)	0.0000011
		and the second second	
	Sec.	Plume Monitoring	
Water	80983	Background, dissolved	0.0000010
Tuici		Desergional term	
Water	80984	0-10 min, overflow, dissolved	0.0000010
Water	80985	10-20 min, overflow, dissolved	0.0000011
Water	80986	20-30 min, overflow, dissolved	0.0000010
Water	80949	0-10 min, overflow, total	0.0000010
Water	80950	10-20 min, overflow, total	0.0000010
vvater	00001	20-00 mini, overnow, total	0.0000010
Water	80987	0-10 min, non-overflow, dissolve	0.0000010
Water	80988	10-20 min, non-overflow, dissolve	0.0000010
Water	80989	20-30 min, non-overflow, dissolve	0.0000010
Water	80952	0-10 min, non-overflow, total	0.0000010
Water	80953	10-20 min, non-overflow, total	0.0000010
vvater	80954	20-30 min, non-overtiow, total	0.0000010
		and a second second	
Water	81104	38 6 min_dissolved	0.0000010
Water	81105	9812 min, dissolved	0.0000010
Water	81106	15&18 min, dissolved	0.0000010
Water	81107	21&24 min, dissolved	0.0000010
Water	81108	27&30 min, dissolved	0.0000010
Water	80891	3& 6 min, total	0.0000015
Water	80892	9&12 min, total	0.0000034
Water	80893	15&18 min, total	0.0000020
Water	80894	21&24 min, total	0 0000019
Water	80895	27&30 min, total	0.0000011
		Hopper Overflow Monitoring	
Water	81109	2& 4 min, dissolved	0.0000010
Water	81110	6& 8 min, dissolved	0.000010
Water	81111	10&12 min, dissolved	0.000010
Water	81112	14&16 min, dissolved	0.0000010
vvater	81113	18820 min, dissolved	0.0000010
vvater	80897	28, 4 min, total	0.0000011
vvater	80898	68 8 min, total	0.0000033
Water	800099	14216 min, total	0.0000011
Water	80901	18&20 min, total	0.0000010
		Site Water	
Water	81603	Sample 1 Total	0.0000010
Water	81604	Sample 2 Total	0.0000010
Water	81605	Sample 3 Total	0.0000010
		Elutriate	0.000004.0
vvater	81609	Sample 7 Dissolved	0.0000010
Water	81610	Sample 2 Dissolved	0.0000010
Water	01011	Sample 3 Lissolved	0.0000010
Water	81607	Sample 7 Total	0.0000010
Water	81608	Sample 3 Total	0.0000010
	5,220	and the second second	
SAMPLE	SAMPLE	DESCRIPTION	PCB 200
TIPE	U		
		Detection Limit (mg/kg)	0.00077
	04747	Insitu Sediment	0.00077
Sediment	81/17	Sample #1	0.00077
Sediment	81718	Sample #2 Sample #3	0.00077
	0.000	0.97 Mar 14	
BOLD - le:	ss than valu	Jes	
Values be	low less that	in values are estimated results. Re	esults are less than the reporting

Plume Monitoring NOF Sample 1 5860 Sample 2 5740 Sample 3 5490 Plume Monitoring OF Sample 1 4310 Sample 2 4200 Sample 3 3862 154430 145210 126670 167600 167600 12 ٠ 5710 4228 4370 4472 4734 4582 4696 30767 84490 27760 37940 51910 TS 4744 4328 4328 Plume Monitoring Background Hopper Overflow Sample 1 Sample 2 Sample 4 Sample 4 Sample 5 Elutriate Sample 1 D Sample 2 D Sample 3 D Sample 1 T Sample 2 T Sample 3 T Inflov Site Water Sample 1 T Sample 2 T Sample 3 T Hopper Inflo Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Det Limit 30 min 34 39 30 min 86 326 326 30 min 47967 5.0 min 92800 10.0 min 29233 20.0 min 79167 5.0 min 143333 25 min 21 30 53 53 53 88 83 267 267 27 min 83933 4.5 min 72400 9.5 min 50667 4.5 min 41967 9.5 min 128633 min 27 37 82 83 83 83 83 247 247 24 min 28667 4.0 min 102600 9.0 min 29233 9.0 min 123700 14.0 min 89033 20 20 15 min 26 31 31 57 57 147 147 118 186 21 min 7290 8.5 min 44200 13.5 min 27767 159133 3.5 min 110300 12 min 23 41 41 88 88 12 min 138 138 280 138 18 min 27900 8.0 min 97167 13.0 min 62400 8.0 min 108600 3.0 min Page 1 tssfine 7.5 min 56733 43933 2.5 min 57567 12.5 min 78100 (7.5 min 79833 40 min 30 45 144 7 min 41 47 7 min 204 288 288 386 12 min 27767 12.0 min 63700 17,0 min 136467 2.0 min 75333 7.0 min 40233 Location 3 69733 102433 119000 34 35 55 98 98 98 26 26 26 26 76 5 min 55 335 335 9 min 3140 ocation 3 29067 93267 138033 1.5 min 95367 5.5 min 66633 11.5 min 15700 16.5 min 137167 8 .ocation 2 65267 55900 145200 6 min 12860 cation 2 81233 52033 121533 min 91 91 35 35 35 89 105 314 314 376 177 41733 6.0 min 93833 11.0 min 58000 6.0 min 48267 93367 93367 33233 127167 0.5 min 64260 52100 0 min 39 48 110 110 116 116 ation 1 71067 108533 60467 5.5 min 117967 10.5 min 46200 83 83 TSS 102 118 206 3 min 1760 TSS Delaware River Water Analysis (Fine-Grained Site) Hopper Contents Beginning of Overflow TSS Top Depth TSS Mid-Depth TSS Bottom Depth Hopper Contents End of Overflow TSS Top Depth TSS Mid-Depth TSS Bottom Depth Plume Monitoring Non-Overflow TSS Top Depth TSS Mid-Depth TSS Bottom Depth Plume Monttoring Background TSS Top Depth TSS Mid-Depth TSS Bottom Depth Plume Monitoring Overflow TSS Top Depth TSS Mid-Depth TSS Bottom Depth Detection Limit (mg/l) Dissolved 2 Dissolved 3 Dissolved 1 Total 2 Total 3 Total Hopper Overflow TSS (mg/l) Site Water Sample 1 Total Sample 2 Total Sample 3 Total Hopper Overflow TSS (mg/l) DESCRIPTION Hopper Inflow TSS (mg/l) Hopper Overfl TSS (mg/l) Hopper Over TSS (mg/l) Flutriate Sample Sample Sample SAMPLE 81224 81225 81226 81269 81270 81271 81239 81240 81241 81352 81353 81354 81361 81362 81362 81875 81676 81676 31681 31682 31683 31678 31678 31679 31679 31679 81324 31044 31064 81074 31054 SAMPLE Water Nater Nater Nater Water Water Water Water Water Water Water

nutrfine

Delaware River Water Analysis (Fine-Grained Site)

TYPE	ID		177
		Detection Limit (mg/l)	3.00
		Plume Monitoring	
Water	80969	Background dissolved	6 12
Water	80927	Background, total	7.30
Water	80970	0-10 min, overflow, dissolved	3.07
Water	80971	10-20 min overflow dissolved	2 91
Water	80972	20.30 min, overflow, dissolved	274
Valer	200072	0.40 min, overflow, dissolved	10 70
vyater	80928	0-10 min, overnow, total	14.20
Water	80930	20-30 min, overflow, total	8.09
Mator	80072	0.10 min pap avoilage discoluted	4 69
vvaler	80973	10 00 min, non-overnow, dissolved	4 00
vvater	80974	10-20 min, non-overliow, dissolved	6.35
vvater	80975	20-30 min, non-overnow, dissolved	5.19
Water	80931	0-10 min, non-overflow, total	6,92
Water	80932	10-20 min, non-overflow, total	7.44
Water	80933	20-30 min, non-overflow, total	8 69
		Lineard Inflati Manifesting	
Alata-	01004	28 G min dissoluted	24.90
vvalef	81084	or o min, dissolved	24.00
vvater	81085	9812 min, dissolved	47 30
Water	81086	15&18 min, dissolved	64 60
Water	81087	21&24 min, dissolved	19.00
Water	81088	27&30 min, dissolved	63.00
Water	80855	3& 6 min, total	1010.00
Water	80856	9&12 min, total	3300.00
Water	80857	15818 min, total	6030.00
Water	80858	21&24 min. total	1170.00
Water	80859	27&30 min. total	6460.00
		Hopper Overflow Monitoring	
Water	81089	2& 4 min, dissolved	14.10
Water	81090	6& 8 min, dissolved	11.90
Water	81091	10&12 min, dissolved	72.30
Water	81092	14816 min dissolved	79 20
Water	81093	18820 min, dissolved	21.40
Water	80861	28. 4 min. total	6660.00
Water	80862	68 8 min total	5930.00
Water	00002	10812 min total	5380.00
Valei	80864	14816 min fatal	6200.00
Water	80865	18&20 min, total	7150.00
Mater	91603	Site Water Sample 1 Total	2.00
vvaler	01093	Sample 7 Total	3.00
Water	81695	Sample 3 Total	3.00
Tutur	01000		
		Elutriate	
Water	81699	Sample 1 Dissolved	3.00
Water	81700	Sample 2 Dissolved	3.00
Water	81701	Sample 3 Dissolved	3.00
Water	81696	Sample 1 Total	1 48
Water	81697	Sample 2 Total	1.43
Water	81698	Sample 3 Total	1.92
	SAMPLE	DESCRIPTION	TOC
TYPE	ID	DEGONIT HON	
		Detection Limit (mg/kg)	3.0
		Insitu Sediment	
Sediment	81723	Sample #1	8090.0
Sediment	81724	Sample #2	7200.0
Sediment	81725	Sample #3	7520.0
BOLD - les	is than value	s	and and a second second
Values bel	ow less than	values are estimated results. Results are i	ess than the reporting lim

spgrfine

Delaware River Water Analysis (Fine-Grained Site)

SAMPLE TYPE	SAMPLE ID	DESCRIPTION		Sp. Gr.	%Moisture	
		Insitu Sediment				
Sediment	81299	Sample #1		2.73	191,58%	
Sediment	81300	Sample #2		2.75	254.93%	
Sediment	81301	Sample #3		2.76	203.04%	
Sediment	81302	Sample #4		2.74	181.93%	
Sediment	81303	Sample #5		2.75	166.58%	
Sediment	81304	Sample #6		2.72	117.93%	
Sediment	81305	Sample #7		2.71	164.93%	
Sediment	81306	Sample #8		2.72	108.57%	
Sediment	81307	Sample #9		2.71	94.57%	
Sediment	81308	Sample #10		2.73	103.87%	
Sediment	81309	Sample #11		2.73	102.13%	
Sediment	81310	Sample #12		2.73	130.69%	
Sediment	81311	Sample #13		2.71	172.19%	
Sediment	81312	Sample #14		2.72	156.47%	
Sediment	81313	Sample #15		2.73	79.16%	
			Average	2.73	148.57%	

Page 1

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Appendix B Plume Study Field Activities and Data Results

Preface

This section of the report describes field activities and data results from the relative acoustic backscatter channel cross sections with the OBS overlay. The investigators who participated in this part of the project were Messrs. Timothy L. Fagerburg, Howard A. Benson, and Terry N. Waller, U.S. Army Engineer Research and Development Center (ERDC), Coastal and Hydraulics Laboratory (CHL), Vicksburg, MS, and William H. Dulaney, ERDC, Geotechnical and Structures Laboratory (GSL).

This section of the report was written by Messrs. Benson and Fagerburg, with assistance in data processing from Messrs. Waller, Martin T. Hebler, Mses. Clara J. Coleman and Jane M. Vaughan, CHL, and Mr. Daryl P. Cook, DIMCO, Inc., Vicksburg, MS.

Field Procedure

Two test areas were selected for monitoring. Reach 1, was a coarsegrained material site located near the Brandywine Range, in lower Delaware Bay. Reach 2, was a fine-grained material site located at the Deepwater Point Range near New Castle, DE (Figure B1). Channel cross-sectional transects were conducted with the 1,200-kHz Broad-Band Acoustic Doppler Current Profiler (ADCP) and Optical Backscatterance (OBS) sensor at several predetermined transect lines in the test areas for nonoverflow and overflow dredge operations. Several transects were monitored prior to the dredge passing to establish background conditions. The dredge would then begin dredging operations and the transect boat would run continuous transects behind it to determine the extent and dispersion of the plume. The first set of transects at each test area was made during the hopper dredge's being filled with no overflow. The dredge would then proceed to the dumping area, empty the load, and return to the site for the second test.



Figure B1. Delaware plume monitoring location map

Prior to the second test, data would be collected at several transect lines again to reestablish background conditions. The second dredging operation would include several minutes of hopper overflow while dredging. Again, the transect boat would run continuous transects behind it to determine the extent and dispersion of the plume. Monitoring the sediment plume was accomplished using a boat-mounted RD Instruments 1200-kHz Broad-Band ADCP. The instrument collects velocity vectors in the water column together with backscatter levels to determine the position and relative intensity of the sediment plume. A detailed description of the ADCP is presented in the Equipment Description section.

Along with the ADCP, a MicroLite recording instrument with an OBS Sensor was towed by the vessel at a depth of 4.6 m (15 ft). The MicroLite recorded data at 0.5-sec intervals. A detailed description of the MicroLite is also presented in the Equipment Description section.

Navigation data for monitoring was obtained by a Starlink differential Global Positioning System (GPS). The GPS monitors the boat position from the starting and ending points along each transect. The manufacturer stated accuracy of the navigation system is ± 1 m. The navigation data were recorded at 1-sec intervals for merging with the ADCP and OBS data.

In situ sediment samples were collected prior to the dredging tests at both sites. Bottom samples were collected using a grab-type sampling bucket detailed in the Equipment Description section. Water samples for pore-water and toxicity tests were obtained using a portable pump sampler also described in the Equipment Description section. Types of samples, and the tests and analyses of the samples, are reported elsewhere in the report.

Dredge Plume Monitoring

The data presented in Figures B2 through B15 represent a time-history of the changes in suspended material levels in the water column resulting from dredge operations within each test area. The relative backscatter intensity of the ADCP acoustic signal is described as the strength of the return acoustic signal as it is affected by material suspended in the water column. Changes in levels of suspended material affect the acoustic reflectivity properties of the water column and, in turn, have an effect on the strength of the return signal intensity (decibels). High levels of suspended material in the water column result in high levels of acoustic intensity. The ADCP acoustic intensity data were utilized to identify levels of suspended material in the water column before, during, and following dredging operations.

As stated previously, transects were monitored in each test area to obtain the background levels of suspended materials prior to any dredging activities. The background levels shown in Figures B2 and B5 and in B9 and B12 are for the two test areas, Brandywine Range (Reach 1) and Deepwater Point Range (Reach 2), respectively.

Figures B2 through B4 illustrate the residence time of the sediment plume resulting from nonoverflow dredging operation in the Reach 1. The background levels are shown in Figure B2. Figure B3 shows the vertical



Figure B2. Relative acoustic intensity and OBS readings, Line 3, 1509 EST, Brandywine Range - Reach 1, 09/15/98



Figure B3. Relative acoustic intensity and OBS readings, Line 305, 1633 EST, Brandywine Range - Reach 1, 09/15/98


Figure B4. Relative acoustic intensity and OBS readings, Line 303, 1641 EST, Brandywine Range - Reach 1, 09/15/98



Figure B5. Relative acoustic intensity and OBS readings, Line 113, 1938 EST, Brandywine Range - Reach 1, 09/15/98



Figure B6. Relative acoustic intensity and OBS readings, Line 217, 1953 EST, Brandywine Range - Reach 1, 09/15/98



Figure B7. Relative acoustic intensity and OBS readings, Line 119, 1957 EST, Brandywine Range - Reach 1, 09/15/98



Figure B8. Relative acoustic intensity and OBS readings, Line 115, 2050 EST, Brandywine Range - Reach 1, 09/15/98



Figure B9. Relative acoustic intensity and OBS readings, Line 18, 1404 EST, Deepwater Point Range -Reach 2, 09/16/98



Figure B10. Relative acoustic intensity and OBS readings, Line 118, 1459 EST, Deepwater Point Range -Reach 2, 09/16/98



Figure B11. Relative acoustic intensity and OBS readings, Line 224, 1518 EST, Deepwater Point Range -Reach 2, 09/16/98



Figure B12. Relative acoustic intensity and OBS readings, Line 14, 1730 EST, Deepwater Point Range -Reach 2, 09/16/98



Figure B13. Relative acoustic intensity and OBS readings, Line 9, 1818 EST, Deepwater Point Range -Reach 2, 09/16/98



Figure B14. Relative acoustic intensity and OBS readings, Line 15, 1832 EST, Deepwater Point Range -Reach 2, 09/16/98



Figure B15. Relative acoustic intensity and OBS readings, Line 324, 2020 EST, Deepwater Point Range -Reach 2, 09/16/98

and horizontal dimensions of the sediment plume immediately behind the dredge. Figure B4 shows the level of suspended material in the water column 8 min following the dredge's passing, indicating that background levels of suspended material are returning to the site. No lateral dispersion of the plume out of channel was observed during the nonoverflow dredging operation.

Figures B5 through B8 illustrate the residence time of the sediment plume created with hopper-overflow conditions during dredging operations in Reach 1. Background levels of suspended materials prior to the dredging operations are shown in Figure B5. The vertical and horizontal dimensions of the sediment plume immediately behind the dredge while hopper over-flow conditions are occurring are shown in Figure B6. Plume dimensions 4 min after the dredge passed are shown in Figure B7. A wider transect was performed, as seen in the horizontal distance scale, to determine the lateral extent of the plume. No significant change above background levels could be detected. At 1 hr elapsed time following the end of the overflow dredging operation, the levels of suspended material had returned to background conditions as shown in Figure B8. Again, no lateral dispersion of the plume out of the channel area was observed.

Figures B9 through B11 illustrate the residence time of the sediment plume created from nonoverflow conditions during dredging operations in the Reach 2 area. At the beginning of the dredging operations, background suspended material levels are shown in Figure B9. The plume dimensions in the lateral and vertical directions immediately behind the dredge at the start of dredging operations are shown in Figure B10. After an elapsed time of 19 min (Figure B11), following the end of dredging operations, the levels of suspended material had returned to background conditions. During this dredging operation, the tidal flow in the dredging area had reversed from flood flow to ebb flow conditions. This accounts for the relative change in background levels seen between Figure B9 and Figure B11. Despite the changes in background levels resulting from the change in direction of flow in the dredging area, no lateral movement of the plume beyond the channel limits was observed.

Figures B12 through B15 illustrate the residence time of the dredge plume resulting from hopper overflow dredging conditions in the Reach 2 area. Background levels prior to dredging operations are shown in Figure B12. The sediment plume dimensions immediately behind the dredge prior to overflow conditions can be seen in Figure B13. Note the increase in the suspended material levels within the first 400 ft of the transect. The increase in these levels can be attributed to the increase in the ebb flow velocities and the resulting disturbance of bottom materials from near bottom velocities and not dredge plume dispersion. When hopper-overflow conditions began, another transect was performed located immediately behind the dredge as shown in Figure B14. The width of the transect was also increased, as indicated in the length of the horizontal distance scale, to observe the lateral extent of the dispersion of the dredge plume. After an elapsed time of 1 hr following the completion of the overflow dredging operation, Figure B15 indicates that the levels of suspended materials had returned to background conditions. Note the increase in sediment disturbance near the bottom in the shallow portions of the transect which are due to the increase in the velocities during the ebb cycle of the tide. As in the previous dredge operations, no lateral dispersion of the dredge plume beyond the channel limits was observed.

The OBS data shown in Figures B2 through B15 were used to see if there is a correlation between the relative acoustic backscatter from the ADCP with different levels of turbidity for the OBS sensor. The figures indicate a fairly good correlation as increases in the ADCP relative acoustic intensities correspond to similar increases in the turbidity levels from the OBS sensor. Since the OBS sensor was deployed at a fixed depth, relative changes in turbidity throughout the water column were not measured.

Equipment Description



Figure B16. Acoustic Doppler Current Profiler



Figure B17. Vessel-mounted ADCP

Acoustic Doppler Current Profiler (ADCP)

Acoustic techniques are used to obtain current velocity and direction measurements for fast and accurate profiling in the field. The equipment used was a boat-mounted RD Instruments BroadBand Acoustic Doppler Current Profiler (ADCP) as shown in Figure B16. The RD instruments operating frequency was 1,200 kHz. The equipment can be mounted over the side of boat with the acoustic transducers submerged and data is collected while the vessel is underarey as shown in Figure B17.

The ADCP transmits sound bursts into the water column which are scattered back to the instrument by particulate matter suspended in the flowing water. The ADCP sensors listen for the returning signal and assigns depths and velocity to the received signal based on the change in the frequency caused by the moving particles. This change in frequency is referred to as a Doppler shift. The ADCP is also capable of measuring vessel direction, current direction, water temperature, and bottom depth. Communication with the instrument for setup and data recording are performed with a portable computer using manufacturer supplied software, hardware, and communication cables. The manufacturer stated accuracies for current speed measurement ± 0.2 cm/sec; for vessel direction, ± 2 deg; and for temperature, ± 5 °F.

OBS Sensors

The OBS sensor, a product of D&A Instruments and Engineering, is a type of nephelometer for measuring turbidity and solids concentrations by detecting scattered infrared light from suspended matter. It consists of a high-intensity infrared emitting diode (IRED), a series of silicon photodiodes as detector and linear solid state temperature transducer. The IRED emits a beam at angles 50 deg in the axial plane and 30 deg in the radial plane to detect suspended particles by sensing the radiation they scatter, as shown in Figure B18. Scattering by particles is a strong function of the angle between the path of radiation from the sensor through the water and the signal return to the detector. OBS sensors detect only radiation scattered at angles greater than 140 deg. As with other optical turbidity sensors, the response of the OBS sensor depends on the size distribution, composition, and shape of particles suspended in the medium being monitored. For this reason, sensors must be calibrated with suspended solids from the waters being monitored. The OBS sensor is interfaced with Coastal Leasing, Inc., MicroLite solid-state microprocessor that controls samples, averaging, and data storage. The MicroLite uses Wizard portable PC software to provide user-friendly control of the instrument.



Figure B18. OBS sensor beam pattern

Tethered-drag sampler

The Tethered-drag sampler is basically a 76-mm- (3-in.-) diam pipe cut on a 45-deg angle with a shackle mounted on one side. The sampler is

thrown over the side and dragged along the bottom. The sample accumulates inside the pipe. Samples are removed, inspected, and packaged in plastic bags or jars for further analysis once returned to ERDC. The Tethered-drag sampler is displayed in Figure B19.



Figure B19. Tethered-drag sampler

Pumped water samples

Water samples are obtained by pumping the sample from the desired depth to the surface collection point via a portable sampling pump. The pumping system consists of a 6-mm- (1/4-in.-) ID plastic tubing attached to a weighted "fish" for support. The weight is lowered by cable from a winch with a depth indicator. The opening of the sampling tubing is attached to a solid suspension bar above the weight and is pointed into the flow. A 12-V DC pump is used to move the water through the tubing to the deck of the boat where each sample is then collected in appropriate glass or plastic containers. The pump and tubing are flushed for approximately 1 min at each depth before collecting the sample.

Appendix C Detection of Short-Term Sedimentation During Hopper Dredging Operations in Delaware Bay and the Delaware River¹



Adapted from unpublished draft report, Robert J. Diaz and Douglas G. Clarke, February 1999, R. J. Diaz and Daughters, Ware Neck, VA, and Coastal Ecology Branch, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS

Introduction

Navigation channel maintenance dredging projects employing hopper dredges can produce substantial water-column turbidity when in situ sediments contain a high proportion of fines and overflow practices are used. Most of the sediment resuspended during overflow operations has been shown to settle within several hundred meters of the channel (Nichols, Diaz, and Schaffner 1990; Clarke et al. 1990). It has been hypothesized that even short-term pulses in sedimentation rates induced by overflow operations could negatively impact sensitive living resources, such as oyster beds, in the vicinity of dredged channels.

Detection and measurement of recently deposited thin layers of dredged material can be a severe technical challenge. Sediment overburdens with thicknesses on the scale of several millimeters can potentially raise concern for biological impacts. Precision bathymetry methods using acoustic technologies lack the sensitivity to detect low-density thin overburdens less than 5 to 10 cm thick, at best. However, direct in situ observations of very thin layers have effectively been done with sediment profile imaging (SPI). Nichols, Diaz, and Schaffner (1990) demonstrated that SPI techniques could detect thin layers of sediment deposited from hopper dredge overflow operations in the Chesapeake Bay. SPI has also proven to be very effective in mapping the distribution of thin layers resulting from open-water dredged material disposal operations in Mobile Bay (Diaz, Schafffner, and Kiley 1987a; Diaz and Schaffner 1988; Clarke and Miller-Way 1992), Mississippi Sound (Diaz, Schafffner, and Kiley 1987b), and Long Island Sound (Morton, Parker, and Richmond 1985).

The primary focus of this study was to determine if short-term sedimentation of dredged material occurred as a consequence of resuspension by the dragheads or during overflow from the hopper dredge. A secondary objective, should sedimentation be detected in sediment profile images, was to determine the distances from the navigation channel at which measurable sedimentation occurred. Two areas were selected by the U.S. Army Engineer District, Philadelphia (CENAP), for conduct of the hopper dredging operations tests (Figure C1). These locations represent a relatively open-water site in the Delaware bay, designated the Lower Study site (LS), and a more riverine site in the Delaware River, designated the Upper Study site (US).

Materials and Methods

Field methods

On 15 and 16 September 1998, sediment profile images were collected at a series of stations at the two predetermined locations in Delaware Bay and the Delaware River (LS and US, respectively). SPI data were successfully collected at stations in the LS site (Figure C2) and stations in the US site (Figure C3). At each station a Hulcher Model Wrenn sediment profile camera was deployed. During each deployment the profile camera obtained two images (Fujichrome 100P 35-mm slides) at 5 and 15 sec after bottom contact. The two-image sequence helps to ensure that when deployment occurs in soft, unconsolidated sediments the sediment-water interface is captured in the image before the camera prism optical window descends too deeply into the substrate.

Stations were located based on considerations of prevailing wind, river discharge, and/or tidal flow conditions at the time of each hopper dredge test. At both study locations data were collected first while the dredge was operating without overflow, followed by a second test with overflow. Sampling proceeded for up to 2 hr after dredging ceased.

Image analysis

The sediment profile images were first analyzed visually by projecting the images and recording all features seen into a preformatted, standardized spread sheet file. The images were then digitized using a Polaroid Sprint Scan 35 Plus scanner and analyzed using Adobe Photoshop and NTIS Image programs. Steps in the computer analysis of each image were standardized consistent with procedures described in Viles and Diaz (1991). Data from each image were sequentially saved to a spread sheet file for later analysis. Details of how these data were obtained can be found in Diaz and Schaffner (1988) and Rhoads and Germano (1986), and in the standardized image analysis procedures of Viles and Diaz (1991).

Results and Discussion

SPI images from a total of 14 stations were analyzed from the LS site (Figure C2) and 41 stations from the US site (Figure C3). The approximate location of the hopper dredge in proximity to the sampling stations is shown in Figures C2 and C3. The LS site was sampled on 15 September from 1958 to 2208 hr. Tidal flows were flooding during the sampling period and winds were approximately 24 to 32 kph (15 to 20 mph) out of the east. Sea conditions were marginal for successful deployment of the camera system, with approximate wave heights of 0.6 to 0.9 m (2 to 3 ft). The US site was sampled on 16 September 1998 from 1507 to 2102 hr. This reach of the Delaware River is influenced by tidal currents, which were ebbing during the sampling period. Sea conditions were mild with wave heights less than 0.6 m (2 ft) throughout the sampling period.

Presented below are explanations of each of the parameters produced from analysis of SPI images and an overview of observations of physical and biological features at the two study sites. Complete listings of visual and computer analysis data for each study site are given in Tables C1 and C2.

Prism penetration

This parameter provided a geotechnical estimate of sediment compaction, with the profile camera prism acting as a dead weight penetrometer. The depth of prism penetration is therefore related to the "softness" or degree of sediment compaction or water content. Penetration was simply measured as the distance the sediment interface moved up the 23-cm length of the prism optical window as captured by the 15-sec image. The weight of the camera frame was kept constant at 43 kg (95 lb) in order to allow comparisons of relative sediment compaction between stations.

Sand bottoms typical of the LS site had comparatively shallow penetration depths, ranging from 0.0 to 10.9 cm (Table C1). When sandy sediments are poorly sorted, as was the case at channel station LS-09 (Figure C4), prism penetration was deeper. Silty-clay sediments prominent at the US site had comparatively deep penetration (loosely compacted) values, ranging from 9.8 to 25.0 cm (Table C2). Compacted clay sediments, as indicated by very shallow penetration, can be seen in the image from station US-14 (Figure C5).

Surface relief

Surface relief or boundary roughness was measured as the difference between the maximum and minimum distance (relative to the sediment-water interface) the prism penetrated and provided qualitative and quantitative data on habitat characteristics useful for evaluating existing conditions. Small-scale bed roughness on the order of the width (15 cm) of the prism optical window can be estimated from the images. Factors contributing to observed roughness can often be inferred from visual analysis of the images.

In the open-water setting of the sandy LS site, physical factors (e.g., water current and wave generated turbulence) obviously dominated local sediment processes. Surface relief was typically present as small bed forms (e.g., LS-13, Figure C6) that ranged from 0.6 to 2.0 cm (Table C1). In contrast, the muddy habitats of the US site were primarily influenced by biological features, including mounds, pits, and tubes formed from the biogenic activity of benthic organisms (e.g., US-35, Figure C7). Here surface relief values ranged from 0.4 to 3.5 cm (Table C2).

Apparent color redox potential discontinuity layer

This parameter has been determined to be an important estimator of benthic habitat quality (Rhoads and Germano 1986, Diaz and Schaffner 1988), providing an estimate of the depth to which sediments are oxidized. The term "apparent" is used in describing this parameter because no direct chemical measurement is made of the redox potential. Rather an assumption is made that, given the complexities of iron and sulfate reduction-oxidation chemistry, reddish/greenish-brown sediment color tones (Diaz and Schaffner 1988) are indicative of oxic sediments, whereas reduced sediments have gray to black color tones. This is in accordance with the classical concept of redox potential discontinuity (RPD) depth, which associates RPD with sediment color (Fenchel 1969, Vismann 1991).

The depth of the apparent color RPD was defined as the area of all the pixels in the image discerned as being oxidized divided by the width of the digitized image. The area of the image with oxic sediment was obtained by digitally manipulating the image to enhance characteristics associated with oxic sediment (reddish/greenish-brown color tones). The enhanced area was then measured from a density slice of the image.

The apparent color RPD has been a very useful parameter in assessing the quality of a benthic habitat for infauna and epifauna from both physical and biological perspectives. Rhoads and Germano (1986); Revelas, Rhoads, and Germano (1987); Day, Schaffner, and Diaz (1988); Diaz and Schaffner (1988); Valente et al. (1992); and Bonsdorff et al. (1996) all found the depth of the RPD from profile images to be directly correlated to the quality of the benthic habitat in polyhaline and mesohaline estuarine zones. Controlling for differences in sediment type, habitats with relatively thin (<5 mm) RPD layers tend to be associated with some type of environmental stress. In contrast, habitats with relatively deep RPD values (>2 cm) usually have flourishing infaunal and epifaunal communities.

Porous sandy sediments (e.g., LS-09, Figure C4) and silty-clay sediments with evidence of high levels of biological activity (e.g., US-11, Figure C8) had the deepest RPD measurements in this study. Shallowest RPD measurements were associated with images that had signs of physical disturbance, possibly dredging related (e.g., LS-06, Figure C9), or were compact clays (e.g., US-33, Figure C10). In the LS site, average RPD depth ranged from 0.7 to 5.3 cm, and from 0.1 to 6.6 cm in the US site (Tables C1 and C2).

Sediment grain size

Grain size is an important parameter for determining the nature of the physical forces acting on a sedimentary habitat. Grain size is also a major factor in determining benthic community structure (Rhoads 1974). The sediment type descriptors used for image analysis follow the Wentworth classification as described in Folk (1974) and represent the major modal class for each image. Grain size was determined by comparison of collected images with a set of standard images for which mean grain size had been determined in the laboratory.

Grain size ranged from medium-sand gravel (e.g., US-21, Figure C11) to clay (e.g., US-35, Figure C7). Traces of sand were also seen at a few fine-grained stations (e.g., US-29, Figure C12) and traces of fines at coarse-grained stations (e.g., US-32, Figure C13). Within study site variation in sediment type for the LS site was low, with the modal grain size being fine-medium-sand (e.g., LS-03, Figure C14). Shell hash was a major component of sediments in the LS site, particularly in the navigation channel (e.g., LS-06, Figure C9) (Table C1). In the US site sediments were more variable with the modal grain size being clay (e.g., US-09, Figure C4), which was closely followed by silty-clay (e.g., US-09, Figure C15). In addition to having finer sediments than the LS site, there was little evidence of shell hash in US site sediments (Table C2).

Near-bottom turbidity

The sediment profiling camera is also able to image water column turbidity immediately above the sediment-water interface. Light from the camera prism's internal strobe illuminates suspended sediment particles and allows qualitative estimation of turbidity. Turbidity was categorized as low (if the water column was clear with little or no suspended sediment, e.g., LS-02, Figure C16), moderate (e.g., US-09, Figure C15), and high (e.g., US-14, Figure C5). If plumes of resuspended sediment derived from either of the dragheads of overflow were present at the sampling station, the camera would capture the near-bottom turbidity. Such turbidity can be distinguished from other sources, such as that frequently caused by camera frame contact with the substrate, by color tones. Dredge-induced turbidity has a gray color because the bulk of the sediments dredged are from the anoxic zone and in a reduced redox chemical state. Reduced iron and manganese sulfide compounds are dark gray to black in color which contrasts well with the reddish to brown color tones of their oxidized compounds. Background turbidity or that caused by the camera frame landing on the bottom would be brown in color because the suspended sediments were disturbed from the uppermost few millimeters of surficial sediments, which are typically in an oxic redox state.

Two stations in the LS site (LS-07 and LS-12, Figures C17 and C18) had grayish colored suspended material. Station LS-07 was located on the edge of the navigation channel and could have been affected by passage of the dragheads. This station was occupied prior to initiation of overflow. LS-12 was located in the channel and appeared to have been recently disturbed. All other LS images had brownish suspended materials (Table C2).

The relative amount of suspended material showed no pattern relative to the dredging operation at either LS or US site. In the US site, high levels of turbidity seemed associated with shoal areas (<5.5 m (<18 ft) deep) to the northwest of the channel (Figure C3). The four channel stations in the US site had low turbidity levels (Table C2). Only one of the four channel stations in the LS site had moderate turbidity, while the remaining three had low turbidities (Table C1).

Current scour

While sitting on the bottom, the prism and camera housing assembly present an obstruction to bottom currents. Deflection of currents can erode the sediment-water interface at the edges of the prism. This erosion can be seen in SPI images as small dips in the sediment-water interface at the edges of the image. When these dips occur, it is reasonable to assume that bottom currents at the time the image was taken were >10 cm/sec.

Evidence of scour was seen at three of the four channel stations in the LS site (e.g., LS-12, Figure C18) and one shoal station (LS-03, Figure C14) (Table C1). In the US site only one of the 41 stations (US-31, on the channel edge, Figure C19) showed evidence of scour (Table C2). Scour patterns indicated that bottom currents are likely stronger in the LS site relative to the US site.

Dredged material

When recently deposited, dredged sediments from hopper overflow or open-water disposal are distinct in color from background sediments (Diaz and Schaffner 1988; Nichols, Diaz, and Schaffner 1990), being grayer than background sediments. This is the result of in general, the more advanced diagenic state of deep sediments being dredged (Rhoads, SAIC, personal communication, as discussed in section on Near-Bottom Turbidity).

SPI images from three of the four channel stations in the LS site appear to be recently disturbed and likely dredged material (e.g., LS-06, Figure C9) (Table C1). The channel sediments are sands with shell hash that contain little fine sediment. It is not likely that the surface sediments are from hopper overflow, but more likely associated with disturbance from the dragheads. In addition, the test dredging and overflow were not of sufficient quantity or duration to produce extensive layering from sands.

No station from the US site appeared to have recently deposited dredged material. Sediments at all US site stations appeared to be undisturbed and representative of background conditions.

Sediment layering

Sediment layering as indicated by color or grain-size changes are readily seen in SPI images. The presence of layers is indicative of physical disturbances or episodic events. Sediment layering is characteristic of hopper overflow and open-water disposal operations and can be readily seen in SPI images (Diaz and Schaffner 1988; Nichols, Diaz, and Schaffner 1990).

In the LS site four stations had evidence of layering from grain-size changes (Table C1). Station LS-06 (Figure C9), in the channel, had a shell hash layer at 1.6 cm from the sediment surface. The other three stations,

LS-11 (Figure C20) and LS-13 (Figure C6) on the edge of the channel and LS-10 (Figure C21) on the shoal near the channel, all had thin layers of sandy sediments overlaying silty sediments. Each case seemed indicative of recently deposited sediments, possibly from the dragheads or current induced transport of surface sands. The sediments were not likely from hopper overflow operations since little sand-size sediment would have been discharged from the hopper during a single loading process.

In the US site about half of the stations had sediment layers (Table C2). However, none of the four stations in the channel had sediment layering. About half of the stations (8 of 17) on the edge of the channel had layers, three with color layering and five with grain-size layering. All five of the grain-size layered channel edge stations had sands on the surface overlying clayey sediments. Since the sediments in the channel were fine silts and clays, it is unlikely that layers observed in these images were attributable to the dredging operations or overflow, which contained little or no sand. In addition, grain-size layered channel edge stations US-22 (Figure C22), US-23 (Figure C23), and US-33 (Figure C10) had amphipod and/or worm tubes which could not have reestablished living positions in the approximately 1-hr interval between dredging operations and sampling. Color layering was represented by varying hues of grays and was found deeper in the sediments, ranging from 2.5 to 9.0 cm from the surface (Table C2). These deeper color layers are not likely a result of recent dredging operations and may represent episodic events such as seasonal high river discharges or storm deposits. Detritus appeared to be mixed into the uppermost sediment layer at shoal stations US-09 (Figure C15), US-10 (Figure C24), and US-11 (Figure C8).

Surface features

Surface features include a variety of physical and biological parameters, each providing different information on the type of habitat and its quality for supporting benthic species. The presence of certain features is indicative of the overall nature of a habitat. For example, bed forms are always associated with physically dominated habitats, whereas the presence of worm tubes or feeding pits would be indicative of a more biologically accommodated habitat (Rhoads and Germano 1986, Diaz and Schaffner 1988). Surface features were visually evaluated from each image and compiled by type and frequency of occurrence.

The sediment surface at stations in the LS site was dominated by bed forms and shell hash (Table C1). In the US site, biogenic pits and mounds were the dominant surface features (Table C2). No epifauna were seen in either area. Flock layers, thin layers of unconsolidated sediments, occurred at six shoal stations (e.g., US-09, Figure C15) and one channel edge station (US-34, Figure C25) in the US site (Table C2). All flock layers appeared to be composed of background sediments and not dredged material, as evidenced by their respective color tones. Tubes were seen at only one of the LS site stations (LS-11, Figure C20). At the US site stations, worm or amphipod tubes occurred at 12 of 41 stations (Table C2). Amphipod tube mats occurred at US-05 (Figure C26), US-06 (Figure C27), and US-22 (Figure C22), which were channel and channel edge stations.

Subsurface features

These parameters include a wide variety of features and provide insights into physical and biological processes influencing the bottom. For example, the presence of methane gas voids has been an indication of anaerobic metabolism (Rhoads and Germano 1986) and associated with high rates of bacterial activity. Muddy habitats with large amounts of methane gas are generally associated with areas of oxygen stress or high organic loading. On the other hand, habitats with burrows, infaunal feeding voids, and/or actual infauna visible in SPI images are generally more biologically accommodated and considered "healthy" (Rhoads and Germano 1986, Diaz and Schaffner 1988, Valente et al. 1992). Subsurface features were visually evaluated from each image and compiled by type and frequency of occurrence.

No infauna, burrows, or voids were seen at the LS site stations (Table C1). This was the result, in part, of the prevalence of coarse sediments, which are not generally associated with fauna that form burrows or voids, and by shallow camera prism penetration.

In the US site, 4 stations had infaunal organisms, 12 had active burrows, 2 had active feeding voids, and 3 had anaerobic voids (Table C2). Gas filled voids occurred at nine stations and were abundant at most of these stations (e.g., US-26, Figure C28), indicating relatively high concentrations of organic matter in the sediments. Evidence of hydrocarbon contamination was seen at station US-03 (Figure C29) in the form of "oil spots." Diaz et al. (1993) found that sediments containing high concentrations of hydrocarbons had a unique signature in the SPI images and that this signature was significantly related to the occurrence of hydrocarbons.

Summary and Conclusions

The LS site was more physically accommodated than the US site which was more biologically accommodated (Table C3). Sediments in the LS site were coarser and had more shell hash than the US site which was characterized by finer sediments and more biologically reworked.

There was evidence that recent physical disturbance had occurred at several of the LS stations (LS-06, LS-09, LS-12), possibly a result of the dredging operations. Gray colored suspended material, indicative of hopper overflow material, was also observed at two stations (LS-07, LS-12). However, since this gray suspended material was also associated with recently disturbed sediments at LS-12, it could also have resulted from draghead activity. This leaves LS-07 as the station with the clearest signature of hopper overflow, but this was in the form of turbidity and not accumulation of overflow material on the sediment surface. Four LS stations had layering from grain-size changes. Station LS-06, in the channel, had a shell hash layer at 1.6 cm from the sediment surface. The other stations, LS-11 and LS-13 on the edge of the channel and LS-10 on the shoal near the channel, all had thin layers of sandy sediments overlying silty sediments. Although such layers are indicative of recently deposited sediments, those seen in the SPI images are likely the result of normal sediment transport processes rather than hopper overflow operations. Little sand would be discharged from overflow in a single pass of the hopper dredge.

In the US site, no evidence of recent physical disturbance was detected at any of the stations, but material that could have come from the hopper overflow was observed at one station (US-33). About half of the US stations had sediment layers, but none of the stations in the channel had sediment layers. About half of the stations on the edge of the channel had layers, three with color layering and five with grain-size layering. All five of the sediment layered channel edge stations had sands on the surface overlaying clayey sediments. Since the sediments in the channel were finer silts and clays, it was unlikely that the layers at the channel edge stations were the result of the dredging operations. In addition, sediment layered channel edge stations US-22, US-23, and US-33 had amphipod and/or worm tubes which could not have reestablished living position in the short interval between dredging and sampling. Flocculent sediment layers, thin layers of unconsolidated surface sediments, occurred at six shoal stations and one channel edge station in the US site. Based on their color tones, all flock layers appeared to be composed of background sediments and not hopper overflow or dredged material. Evidence of hydrocarbon contamination was seen at station US-03 in the form of "oil spots."

No indication of newly deposited dredged material was observed at stations outside the edge of the navigation channel at either study site. Although the sampling station coverage was not extensive, given the relatively short duration of the tests, the risk of significant sedimentation as a consequence of the hopper dredging operations appears largely restricted to the bottom and slide slopes of the channel.

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Figure C1. Locations of the lower and upper hopper dredge overflow test study sties



Figure C2. Sediment profiling imagery stations occupied during hopper dredge loading and overflow tests at the LS site. The figure has been modified from a NOAA navigaition chart with depths indicated in feet. Approximate start and end of test locations of the dredge are indicated by the red arrow







Figure C4. SPI image of Lower Study Site Station LS-09



Figure C5. SPI image of Upper Study Site Station US-14



Figure C6. SPI image of Lower Study Site Station LS-13



Figure C7. SPI image of Upper Study Site Station US-35



Figure C8. SPI image of Upper Study Site Station US-11



Figure C9. SPI image of Lower Study Site Station LS-06



Figure C10. SPI image of Upper Study Site Station US-33



Figure C11. SPI image of Upper Study Site Station US-21



Figure C12. SPI image of Upper Study Site Station US-29



Figure C13. SPI image of Upper Study Site Station US-32



Figure C14. SPI image of Lower Study Site Station LS-03


Figure C15. SPI image of Upper Study Site Station US-09



Figure C16. SPI image of Lower Study Site Station LS-02



Figure C17. SPI image of Lower Study Site Station LS-07



Figure C18. SPI image of Lower Study Site Station LS-12



Figure C19. SPI image of Upper Study Site Station US-31



Figure C20. SPI image of Lower Study Site Station LS-11



Figure C21. SPI image of Lower Study Site Station LS-10



Figure C22. SPI image of Upper Study Site Station US-22



Figure C23. SPI image of Upper Study Site Station US-23



Figure C24. SPI image of Upper Study Site Station US-10



Figure C25. SPI image of Upper Study Site Station US-34



Figure C26. SPI image of Upper Study Site Station US-05



Figure C27. SPI image of Upper Study Site Station US-06



Figure C28. SPI image of Upper Study Site Station US-26



Figure C29. SPI image of Upper Study Site Station US-03

		Pe	netratio	n (cm)	Curtano	Ave			Cumandad						i,		
Sta	Descriptor	Min	Max	Ave	Relief	Depth	Sediment Type	Turbidity	Sediment Color	Current Scour	Dredged Material	Sediment Layers	Surface Features	Tubes	Worms	Burrows	Voids
1	Shoal	0.8	1.7	1.3	0.0	કા.3	FSMS	Little	Brown	Na	No	ũ.	BED,SH	None	0	0	Ū,
2	Shoal	3.3	4.1	3.7	0.8	>3.6	FSMS	Little	Brown	No	Na	0	BED.SH	None	0	0	0
3	Shoal	6.1	8.0	7.0	1.8	2.9	FSMS	Moderate	Brown	Yes	No	0	BED.SH	None	0	0	0
4	Shoal	2.5	4.1	3.3	1.6	1.6	FS	Moderate	Brown	No	No	0	BED.SH	None	0	0	0
5	Shoal	0.0	0.0	0,0	0.0	ł	FS	Little	Brown	No	No		BED,SH	None			ιx,
9	Channel	5.7	6.3	6.0	0.6	0.7	FSMSSH	Moderate	Brown	Yes	Yes	1	SHDIST	None	ŋ	0	ŋ
7	Edge	0.0	[3	0.7	1.3	>0.7	FSSH	Low	Gray	No	No	a la	BED.SH	None		i.	
	Edge	1.6	2.5	2.0	8.0	>2.0	FSMSSH	Low	Brown	No	No	0	BED,SH	Some	0	0	0
6	Channel	8.6	11.9	10.9	2.0	5.3	FSMSSH	Low	Brown	Yes	Yes	σ	SCOUR	None	0	0	0
10	Shoal	2.6	3.2	2.9	0.6	0.8	FS/SI	Low	Brown	No	No	1	BED,MD,SH	None	0	0	0
ŢĮ,	Edge	2.5	4.4	3.4	2.0	2.7	FSMS/SI	Low	Brown	No	No	ğ İ	BED,MD,SH	Few	0	ũ	<u>a</u>
12	Channel	3.3	4.1	3.7	0.8	2.9	FSMSSH	Low	Gray	Yes	Yes	0	SH	None	0	0	0
13	Edge	1.6	5.5	2.0	0.8	>2.0	FSMS/SI	Moderate	Brown	Nu	No	-	BED,SH	None	0	0	0
14	Channel	1,1	2.0	1,6	1.0	9°1<	FSMS	Low	Brown	No	No		BED,SH	None	0	0	0

		Pe	netratio	(cm)	Contract	Ave			Sus-								Tank and
Sta	Descriptor	Min	Max	Ave	Relief	Depth	Sediment Type	Turbidity	pended Sediment Color	Current Scour	Dredged Material	Sediment Layers	Surface Features	Tubes	Worms	Burrows	Gas Voids
	Shoal	12.3	12.6	12.5	0,3	0.7	IS	Low	Brown	No	No		EVEN	None	0	4	1/8
(N	Shoal	7.4	7,6	7.5	0,2	1.4	IS	Low	Brown	No	No	0	MD	None	0	9	0
3	Shoal	6.6	7.3	6.9	1.0	1.0	ß	Low	Brown	No	No	0	QM	Nanc	2	3	0
	Shoal	12.2	12.5	12.4	0.3	2.5	IS	High	Brown	Na	Na	2	QW	Nane	ġ.	2	0
vi.	Edge	9.6	10.8	10.2	1.2	0.2	CL	Lew	Brown	No	Na	Ū.	MD	Mat	0	0	0
4	Channel	12.3	13.4	12.9	$1_{\rm el}$	0.4	CL	Low	Вюми	No	No	0	QW	Mat	0	0	0
2	Channel	16.0	17.2	16,6	1.2	0.2	SICL	Low	Brown	Na	No	0	ЫI	None	0	0	0/4
8	Edge	20.2	21.6	20.9	1.5	i.	SICL	High	Brown	Na	No	0	Шd	None	0	0	1/0
6	Shoal	16.1	16.4	16.2	0.3	4.9	SICL	Moderate	Brown	No.	Na	.t.	FLOC	Nane	0	0	0/15
10	Sheal	9.2	10.3	9.8	10.	2.3	SICL	Low	Brown	Ne	No	Û.	FLOC	None	0	0	0
÷	Shoal	13.1	13.5	13,3	0.4	6.6	SICL	Moderate.	Brown	No	Na	0	FLOC	None	0	0	0/1
-	Shoal	0.0	9,3	9.2	0,3	0,7	CL.	Low	Brown	No	No	1	QM	None	0	0	0
13	Shoal	2.5	6.6	4.5	4.1	i,	CL	High	Brown	No	No	Ū	DIST	None	0	0	0
14	Shoal	1.5	3.0	2.2	1.5	63	ct	High	Brown	No	Na	Û	PB	None	0		0
15	Shoal	24.8	25.2	25.0	0.4	[2	SICL	Moderate	Brown	No	No	0	Alid	None	_	0	0
.91	Shoal	6.3	6,6	6.5	0,3	2.2	IS.	High	Brown	No	Na	(i)	Шđ	None	0	0	0
11	Shoal	7.8	8,4	\$.1	0.6	3,1	SI	Moderate	Brown	No	No	1	MD	None	0	2	0
81	Shoal	4.9	6.0	5.5	LAT	0.3	SIFS	High	Brown	Na	Na	0	LId	Nane	1	5	0
61	Shoal	0.5	11.7	11.6	0.2	3.6	SI	Moderate	Brown	No	No	-	FLOC	None	0	2	1/0
20	Shoal	17.2	18.0	17.6	0.8	4.5	IS.	High	Brown	No	No	2	FLOC	None	0		0
51	Shoal	14.8	18.3	16.5	3,5	2.5	MSGR/CL	Low	Brown	No	No	0	GR	Some	0	0.	2/0
																	Continued)

Tat	ole C2 (Co	onclu	(papi														
		Pe	netratio	n (cm)		Ave	1		Sus-								1
Sta	Descriptor	Min	Max	Ave	Relief	Depth	Sediment Type	Turbidity	pended Sediment Color	Current Scour	Dredged Material	Sediment Layers	Surface Features	Tubes	Worms	Burrows	Feeding/ Gas Voids
32	Edge	6.2	8.0	1.7	1.8	0.6	FS/CL	Law	Brown	No	Na		EVEN	Mat	0	0	0
23	Edge	5.9	(11)	10,3	91	0.7	FS/CL	Moderate	Brown	No	No	() – ()	MD	Some	0	0	0
24	Channel	15.0	17.4	16.2	2.4	0.2	CL.	Law	Brown	No	Na	Ū	PIT	Nane	0	0	0
25	Channel	11.8	12.7	12.3	6'0	0.2	cr	Low	Brown	No	No	0	MD	FEW	0	0	0/25
26	Edge	14.5	15.0	14.8	0.5	0,2	SI	High	Brown	No	No	1	CIM	None		3	0/40
27	Shoal																
28	Shoal																
29	Shoal	5.0	5.7	5.4	0,7	0.2	CL	High	Brown	No	Na	Û	TIA	None	0	. 6	10
30	Shoal	12.0	13.0	12.5	6.9		SI	High	Brown	No	No	2	DIST	None	-0	0	0
31	Sheal	11.3	13.1	12.2	8.1	1.2	SICL	High	Brown	Yes	No	2	FLOC	None	0	0	1/10
32	Edge	2.3	3.9	3,1	1,6	>3.1	MS	Moderate	Brown	No	No	0	DED,GR	None	0	0	.0
33	Edge	3.3	6.2	4.8	3.0	0.1	PS/CL	Moderate	Gray	No	Na	0	ΩW	Many	ġ	á –	11
34	Edge	6.4	8.2	57	1.8	0.4	IS	High	Brown	No	Na	- It	FLOC	None	.0	0	0
35	Edge	3.8	4.8	4.3	-1.6	0.2	CL	Low	Brown	No	No	0	CIM	Many	-0 -	0	0
36	Edge	8.2	12.5	10,4	4.3	0.7	cL	Low	Brown	No	No	0	DIST	Many	0	0.	Ű
37	Edge	20.5	21.0	20.7	0.5		CL	Low	Brown	No	No	0	UND	None	0	0	0
38	Edge	5.7	10.3	8.0	4.6	0.2	CL	Lew	Brown	No	Na	Ū.	DIST	Some	0	Ó.	0
30	Edge	20.9	2).3	21.1	0.4		SICL	High	Brown	No	No	0	EVEN	None	0	0	0/1
40	Edge	12.7	13.1	12.9	0.4	0.2	SI	High	Brown	No	No	2	EVEN	None	0	2	0/17
41	Edge	0.7	ы	0.9	6.4	0,2	FS/CL	Moderate	Brown	No	No	0	BED,DIST	None	0	Ø. –	0
42	Edge	12.3	13.2	12.7	0.9	0.8	MS/CL	Moderate	Brown	No	No	1	BED	Nane	0		ú –
43	Edge	11.8	(2.1	12.0	0.3	6.0	SI	High	Brown	No	No	0	EVEN	None	0	0	0

Table C3

General Comparison of Sediment Profile Image Data from the Lower Study Site (LS, Delaware Bay) and Upper Study Site (US, Delaware River) Sampled During Hopper Dredge Loading and Overflow Tests

and the second s		Location
Feature	Lower Study Site	Upper Study Site
Sediments	Homogeneous, Sands	Heterogeneous, Mainly Clays and Silt-Clays
Sediment Layering	Sediment Grain Size Changes	Color and Sediment Grain Size Changes
Prism Penetration	Shallow	Deep.
Surface Relief	Physical Bed Forms	Biogenic Pits and Mounds
Suspended Material	Mostly Background Sediments	Mostly Background Sediments
Dredged Material	Detected at 3 Stations	Not Detected
Hopper Overflow	Detected at 1 Station	Detected at 1 Station
Hydrocarbon Contamination	Not Detected	Detected at 1 Station
Epifauna	Not Detected	Not Detected
Amphipod or Worm Tubes	Scarce	Common
Infauna	Not Detected	Common

Appendix D Summary of Technical Findings: 96-hr Bioassay with *Mysidopsis bahia* and *Menidia beryllina*

CEWES-ES-F (70-1r)

17 Nov 98

MEMORANDUM FOR: Mr. Jerry Miller, (CEWES-EE-A)

Thru: Dr. Todd Bridges, (CEWES-ES-F)

SUBJECT: Narrative Summary of Technical Findings of a 96-hr Bioassay with Delaware River Sediment and Water.

1. Please find enclosed a letter report summarizing the results of bioassays conducted with *Mysidopsis bahia* and *Menidia beryllina* exposed to concentrations of filtered elutriate.

2. If you have any questions please call me at (601) 634-4027 or Dr. Todd Bridges at (601) 634-3626.

ALFREDA GIBSON Research Biologist CEWES-ES-F

Summary of Technical Findings: 96-hr bioassay with *Mysidopsis bahia* and *Menidia beryllina*

1. <u>Background</u>: As part of an effort to determine the possible biological effects of water column exposure to Delaware River sediment, Mr. Jerry Miller (EED) requested that the Aquatic Biological Effects Team (ABET) conduct acute 96-hr elutriate bioassays on the material with survival being the observed endpoint. The two species used were *Mysidopsis bahia* and *Menidia beryllina*. This report summarizes the results of that study.

2. Technical Approach: 96-hr elutriate bioassays using the mysid shrimp Mysidopsis bahia and the inland silverside Menidia beryllina were conducted according to methods described in the CE/EPA Inland Testing Manual (1998) (Tables D1 and D2). Four treatments were evaluated: 1) Mysidopsis bahia exposed in R1-HO-TOX (coarse-grained material at 30 o/oo) (Table D3); Mysidopsis bahia exposed to R2-HO-TOX (finegrained material at 6 o/oo) (Table D4); Menidia beryllina exposed to R2-HO-TOX (fine-grained material at 6 o/oo) (Table D5); and Menidia beryllina exposed to R1-HO-TOX (coarse-grained material at 30 o/oo) (Table D6). The filtered elutriate was diluted with our standard laboratory control water 40 fathoms (6 o/oo and 30 o/oo) to yield the following concentrations: 0; 6.25; 12.5; 25; 50; and 100% elutriate. Each treatment was replicated five times. The test was conducted using Mysidopsis bahia that were 5 days old and *Menidia beryllina* that were 9 days old. *Mysidopsis* bahia were fed newly hatched brine shrimp daily (0.2 mg) and Menidia *beryllin* were fed newly hatched brine shrimp on day 2 of the test (0.2 mg). Each beaker was provided trickle-flow aeration and covered with a watch glass to minimize evaporation.

3. <u>Results</u>: 96-hr survival of Mysidopsis bahia in the R1-HO-TOX (30 o/oo, coarse-grained material) exposures survival ranged from 100 to 88% (Table D1). Survival in R2-HO-TOX (6 o/oo fine-grained material) ranged from 90 to 0% with 0% survival in the 50 and 100% elutriate treatments (Table D1). 96-hr survival of *Menidia beryllina* in R1-HO-TOX (30 o/oo coarse-grained material) survival ranged from 88% -68%. Survival in R2-HO-TOX (6 o/oo fine-grained material) with ranged from 98 to 0% with 4% - 0% survival in the 50 and 100% exposures (Table D2). The trimmed spearman-karber method was used to calculate LC₅₀ values (Hamilton et al. 1978). *Mysidopsis bahia* in R2-HO-TOX (6 o/oo) had an LC₅₀ value of 30.04% (23.44 - 38.50 lower - upper confidence limit). *Menidia beryllina* in R2-HO-TOX (6 o/oo) had an LC₅₀ value of 31.66 % (27.54 - 36.40 lower -upper confidence limits). An LC₅₀ value could not be calculated for *Mysidopsis bahia* or *Menidia beryllina* in R1-HO-TOX treatments because neither had mortality values greater than 50%.

Survival met or exceeded the test acceptability criterion of 90% in the 6 o/oo and 30 o/oo *Mysidopsis bahia* controls, and also in the 6 o/oo *Menidia beryllina* control. Survival in the 30 o/oo *Menidia beryllina* control

was slightly below the criterion at 88% but is not considered to render the test invalid.

Water quality data are presented in Tables D7 through D10. The pH, dissolved oxygen, and temperature levels were within an acceptable range for conducting toxicity studies with the two test species. Ammonia levels (NH3) were exceedingly higher than the LC_{50} of 1.00 mg/L for 5-day old *Mysidopsis bahia* or the LC_{50} of 1.24 mg/L for 9-days old Menidia beryllina (USEPA 1989).

In conclusion, R1-HO-TOX exposures did not adversely affect survival of either test species, whereas the mortality observed in R2-HO-TOX at 6 o/oo with both species can be attributed to the high level of NH₃.

4. <u>References</u>:

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Treatment	Elutriate Concentration	Mean Percent Survival, standard deviation
R1-HO-TOX (30 o/oo)	0	100 (0.00)
	6	88 (0.84)
	12	96 (0.55)
	25	92 (0.84)
	50	90 (1.22)
	100	92 (0.45)
R2-HO-TOX (6 o/oo)	0	90 (0.00)
	6	76 (1.67)
	12	66 (2.30)
	25	82 (1.30)
	50	0 (0.00)
	100	0 (0.00)

Treatment	Elutriate Concentration	Mean Percent Survival, standard deviation
R1-HO-TOX (30 o/oo)	0	88 (0.84)
	6	70 (1.58)
	12	68 (1.64)
	25	78 (1.79)
	50	80 (1.22)
	100	74 (1.82)
R2-HO-TOX (6 o/oo)	0	90 (0.71)
	6	68 (0.45)
	12	98 (0.45)
	25	78 (1.64)
	50	4 (0.89)
	100	0 (0.00)

Treatment, %	Replicate	Total Number Alive
Control	1	10
Control	2	10
Control	3	10
Control	4	10
Control	5	10
6	1	8
6	2	10
6	3	9
6	4	9
6	5	8
12	1	10
12	2	9
12	3	9
12	4	10
12	5	10
25	1	9
25	2	9
25	3	8
25	4	10
25	5	10
50	1	9
50	2	9
50	3	10
50	4	7
50	5	10
100	1	9
100	2	10
100	3	9
100	4	9
100	5	9

Treatment,%	Replicate	Total Number Alive
Control	1	9
Control	2	9
Control	3	9
Control	4	9
Control	5	9
6	1	8
6	2	9
6	3	7
6	4	9
6	5	5
12	1	8
12	2	6
12	3	9
12	4	7
12	5	3
25	1	7
25	2	7
25	3	9
25	4	8
25	5	10
50	1	0
50	2	0
50	3	0
50	4	0
50	5	0
100	1	0
100	2	0
100	3	0
100	4	0
100	5	0

-

Freatment, %	Replicate	Total Number Alive
Control	1	9
Control	2	9
Control	3	9
Control	4	8
Control	5	10
6	1.	7
6	2	7
6	3	7
6	4	6
6	5	7
12	1	10
12	2	10
12	3	9
12	4	10
12	5	10
25	51	10
25	2	7
25	3	9
25	4	7
25	5	6
50	1	0
50	2	0
50	3	0
50	4	0
50	5	2
100	4	0
100	2	0
100	3	0
100	4	0
100	5	0

Freatment, %	Replicate	Total Number Alive
Control	4	9
Control	2	8
Control	3	10
Control	4	8
Control	5	9
6	1	6
6	2	9
6	3	8
6	4	5
6	5	7
12	1	8
12	2	7
12	3	8
12	4	4
12	5	7
25	1	9
25	2	10
25	3	8
25	4	6
25	5	6
50	1.	8
50	2	10
50	3	7
50	4	7
50	5	8
100	1	7
100	2	7
100	3	10
100	4	8
100	5	5

Treatment	Replicate	D.O. mg/L	pН	Salinity, ppt	Temp. °C	NH ₃ , mg/L composite
Control (initial)	1	5.50	7.85	30	21.7	
(final)		5.84	7.83	30	22.8	1.00
(initial)	3	5.98	7.85	30	21.7	
(final)		6.10	7.80	30	22.8	
(initial)	5	6.11	7.85	30	22.1	
(final)		6.20	7.80	30	22.8	
6 % (initial)	9	5.87	7.89	30	22.1	1
(final)		6.08	7,88	30	22.8	1.38
(initial)	3	5.86	7.87	30	21.7	1
(final)		6.10	7.87	30	22.7	
(initial)	5	5.85	7.86	30	21.5	
(final)		6.10	7.87	30	22.8	
12 % (initial)	1	6.00	7,85	30	23.1	
(final)		6.92	7,86	30	22.8	1.81
(initial)	3	6.15	7,89	30	22.0	1
(final)		6.83	7,88	30	22.9	
(initial)	5	6.00	7.87	30	22.0	
(final)		6.22	7.86	30	23.0	
25 % (initial)	1	6.10	7.85	30	21.8	
(final)		6.19	7,85	30	22.7	1.32
(initial)	3	6.00	7.83	.30	21.8	
(final)		6.30	7.84	30	22.7	· · · · ·
(initial)	5	5.98	7.80	30	21.8	
(final)		6.10	7.83	30	22.7	1.1

Treatment	Replicate	D.O. mg/L	рН	Salinity, ppt	Temp. °C	NH ₃ , mg/L composite
50 % (initial)	4	6.10	7.80	30	21.7	
(final)		6.20	7,80	30	22.7	0.67
(initial)	3	5.95	7.82	30	21.7	
(final)		5.99	7.81	30	22.0	
(initial)	5	5.97	7,70	30	21.7	
(final)		6.10	7,79	30	22.0	
100 % (initial)	- A -	5.97	7,65	28	21.7	
(final)		6.10	7,70	28	22.0	1.53
(initial)	3	5.96	7,69	28	22.7	1
(final)		6.10	7,70	28	22.8	
(initial)	5	5.94	7,64	28	22.7	
(final)		6.05	7,69	28	22.8	÷

Table D8 Water Quality Parameters for Mysidopsis bahia Exposed to R2-HO-TOX Elutriates at 6 o/oo NH₃, mg/L composite D.O. Temp. Treatment Replicate mg/L pH Salinity, ppt °C 1 6.10 7.34 6 22.0 Control (initial) 7.80 6 (final) 5.98 23.0 1,20 (initial) 3 6.08 7.29 22.0 6 (final) 6.00 7,70 6 23.1 (initial) 5 6.06 7.30 6 22.0 6.00 7.77 6 23.0 (final) 6% (initial) 1 6.13 7.50 6 21.7 (final) 5.35 7.83 6 23.0 3.63 7.55 6 (initial) з 6.13 21.7 5.29 7.84 6 23.0 (final) (initial) 5 6.19 7.55 6 21.7 (final) 5.30 7.82 6 23.0 4 7.53 6 21.6 12 % (initial) 6.21 7.96 6 23.1 (final) 5.20 5.04 (initial) 3 6.20 7.55 6 21.6 (final) 5.30 7.97 6 23.0 7.57 (initial) 5 6.21 6 21.6 (final) 5.75 7.97 6 23.0 7.62 6 25 % (initial) 1 6.11 21.6 5.30 8.10 6 23.0 7.33 (final) 6 (initial) 3 6.10 7.60 21.6 (final) 5.29 8.09 6 23.0 (initial) 5 6.10 7.64 6 21.6 (final) 5.30 8,13 6 23.1 (Continued)

Table D8 (Concluded)							
Treatment	Replicate	D.O. mg/L	pH	Salinity ppt	Temp. °C	NH ₃ , mg/L composite	
50 % (initial)	1	6.00	7,65	5	21.7		
(final)		5.20	8,13	5	23.1	12.4	
(initial)	3	6.05	7,66	5	21.7		
(final)		5.40	8,15	5	23.0		
(initial)	5	6.00	7,60	5	21.7		-
(final)		5.30	8.16	5	23.0		
100 % (initial)	ો	5.35	7,60	6	22.0		
(final)		5.50	8,20	6	23.0	21.2	
(initial)	3	5.45	7,67	6	22.0		
(final)	1.	5.39	8.17	6	23.0		
(initial)	5	5.39	7,67	6	21.9		
(final)		5.40	8.17	6	23.1		

Table D9 Water Quality Parameters for Menidia beryllina Exposed to R1-HO-TOX Elutriates at 30 o/oo D.O. Salinity Temp. NH₃, mg/L Treatment Replicate mg/L pH ppt °C composite 5.45 7.83 30 21.7 Control (initial) 1 (final) 7.10 7.73 30 23.1 1.05 3 7.84 30 (initial) 5.98 21.7 (final) 7.06 7.67 30 23.1 (initial) 5 6.17 7.85 30 217 7,74 7.08 30 23.0 (final) 5.85 7.85 30 21.7 6 % (initial) 1 1.22 7.23 7.86 30 23.1 (final) (initial) 3 5.88 7.85 30 21.5 (final) 7.20 7.84 30 23.1 (initial) 5 5.93 7.86 30 21.6 7.86 30 (final) 7.23 23,1 12 % (initial) 1 5.98 7.85 30 22.0 7.87 (final) 7.32 30 23.1 1.36 (initial) 3 6.13 7.85 30 21.9 7.88 6.95 30 23.1 (final) (initial) 5 5.89 7.85 30 21.9 (final) 6.65 7.87 30 23.1 25 % (initial) 1 6.03 7.85 30 21.8 6.07 7.91 30 23.1 1.27 (final) 3 (initial) 5.95 7.83 30 21.8 (final) 6.25 7.91 30 23.0 (initial) 5 6.02 7.80 30 21.8

7.88

30

23.1

6.03

(Continued)

(final)

Table D9 (Concluded)							
Treatment	Replicate	D.O. mg/L	pН	Salinity ppt	Temp. °C	NH ₃ , mg/L composite	
50 % (initial)	1	5.59	7,70	30	21.8		
(final)		5.88	7.93	30	23.1	1.22	
(initial)	3	5.95	7,80	30	21,8		
(final)		6.11	7.92	30	23.1		
(initial)	5	5.85	7,80	30	21,7	1	
(final)		5.64	7.97	30	23.1		
100 % (initial)	ો	5.95	7.64	30	21,7		
(final)		5.58	7.97	30	23.1	1,45	
(initial)	3	5.96	7,64	30	21,7	1	
(final)	12	5.54	7,96	30	23.1		
(initial)	5	5.93	7,63	30	21,7		
(final)		5.69	7.95	30	23.1		

Treatment	Replicate	D.O. mg/L	pH	Salinity ppt	Temp. °C	NH ₃ , mg/L composite	
Control (initial)	1	6.10	7.24	6	22.2		
(final)		5.08	7,65	6	23.1	1.81	
(initial)	3	6.10	7,26	6	22.2	-	
(final)		5.38	7.57	6	23.1		
(initial)	5	6.06	7.30	6	22.2		
(final)		5.33	7.66	6	23.1		
6 % (initial)	<u>۸</u>	6.13	7.47	6	21.7	D2	
(final)		5.21	7,86	6	23.0	4.62	
(initial)	3	6.14	7,54	6	21.7		
(final)		5.30	7.84	6	23.1		
(initial)	15	6.21	7,55	6	21.7		
(final)		5.25	7,86	6	23.1		
12 % (initial)	1	6.20	7.50	6	21,4		
(final)		5.00	7.97	6	23.0	6.20	
(initial)	3	6.25	7.55	6	21.4		
(final)		5.00	8.00	6	23.0		
(initial)	5	6.20	7.55	6	21.4		
(final)		5.25	7.95	6	23.0		
25 % (initial)		6.10	7,63	6	21,7		
(final)		5.23	8.21	6	23.0	5.95	
(initial)	3	6.00	7,63	6	21.7	Da	
(final)		5.00	8.20	6	23.1		
(initial)	5	6.10	7,64	6	21,7	1	
(final)		5.25	8,16	6	23.1	111	
Table D10 (Concluded)							
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Treatment	Replicate	D.O. mg/L	pH	Salinity ppt	Temp. °C	NH ₃ , mg/L composite	
50 % (initial)	1	6.00	7,65	6	21.4		
(final)		5.10	8,43	6	23.0	12.4	
(initial)	3	6.00	7,66	6	21,4	-	
(final)		5.01	8,44	6	23.0		
(initial)	5	6.00	7,66	6	21.5		
(final)		5.00	8,46	6	23.0	1	
100 % (initial)	- A	5.30	7,66	6	21.5		
(final)		5.00	8;75	6	23.1	22.3	
(initial)	3	5.31	7,67	6	21.5	1	
(final)	1.2	5.08	8.75	6	23.0		
(initial)	5	5.23	7,67	6	21,7		
(final)		5.01	8.71	6	23.0		

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14 ABSTRACT								
The hopper until overflow begins. The density of the hopper contents is increased by allowing the low-density supernatant to overflow back into the waterway. As the low-density supernatant overflows, the average density of the hopper contents increases. Thus, more material can be transported per trip to the disposal site or facility resulting in an economical loading. There is normally a tradeoff between the potential economic benefits and potential environmental effects. Overflow results in increased water column turbidity, and supernatant solids may be redeposited near the dredge site. Also, if sediments are contaminated, the overflow may result in some release of contaminants to the water column. Therefore, the relationship between dredge production, density of the hopper load, and the rate of material overflow are important variables in maximizing the efficiency of the dredging operation while								
minimizing harmful contaminant release.								
			(Continued)					
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14. ABSTRACT (Concluded).

A field study was conducted during hopper dredging operations in the Delaware River and Delaware Bay area to quantify the potential load gains realized by overflow, the degree of suspended solids and contaminant release generated by overflow, and the dispersion of the overflow plume. Monitoring was conducted at two sites, one of predominately fine-grained material in the Delaware River, and the other of predominately coarse-grained material in Delaware Bay. This report summarizes the results of the study and describes the potential economic and environmental considerations for overflow at these sites.