APPENDIX A

WATER QUALITY AND SEDIMENT QUALITY SAMPLING

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APPENDIX A - WATER QUALITY AND SEDIMENT QUALITY SAMPLING

A.1 PUBLISHED GROUNDWATER DATA

Groundwater data from U.S. Geological Survey (USGS) monitoring well stations in the vicinity of the proposed DMCF at Masonville are located in Attachment A-1. Data is available for the following applicable USGS monitoring wells:

- USGS 391410076354101 5S2E- 1
- USGS 391436076361301 4S1E-1
- USGS 391456076345601 4S2E- 2

In addition, the U.S. Environmental Protection Agency (USEPA) publishes and characterizes a list of water systems in the Safe Drinking Water Information System (SDWIS). The applicable water systems (included in Attachment A-1) in the vicinity of the proposed DMCF at Masonville include:

- Community Water Systems: Water Systems that serve the same people year-round (e.g., in homes or businesses).
- Non-Transient Non-Community Water Systems: Water Systems that serve the same people, but not year-round (e.g., schools that have their own water system).
- Transient Non-Community Water Systems: Water Systems that do not consistently serve the same people (e.g., rest stops, campgrounds, gas stations).

A.2 WATER QUALITY

Temperature, dissolved oxygen (DO), salinity, and pH were measured at Masonville locations in conjunction with sediment investigations and benthic and fisheries surveys conducted during the years 2003 through 2005 during the seasons spring, summer, and fall. The seasonal *in-situ* water quality data are located in Table A-1. The water quality sampling results measured at the Masonville sampling locations between 2003 and 2005 were compared and consistent with concentrations measured at the Chesapeake Bay Program (CBP) monitoring location WT5.1, located approximately 4.5 miles from the proposed Masonville Dredged Material Containment Facility (DMCF) site in the Patapsco River. Seasonal water quality results collected by the CBP at monitoring location WT5.1 are located in Table A-2. The location of the monitoring station WT5.1 is shown in Figure A-1.

The Comprehensive Harbor Assessment and Regional Modeling Study (CHARMS) is a multi-year effort to develop a water quality model for the Harbor that would predict potential water column toxics based upon sediment concentrations. In order to calibrate the model, surficial water quality sampling within the Baltimore Harbor was required. Two of the sampling sites (Stations 22 and 19) are located within approximately 1 mile of Masonville (Figure A-1). The data collected at these sites provides seasonal background levels of metals, PAHs, PCBs, and chlordane for the area. The chemistry data from Stations 19 and 22 are located in Table A-3.

A.3 SITE WATER AND ELUTRIATE TESTING

The Standard Elutriate Test (SET) was used to predict the release of contaminants to the water column resulting from open water placement of dredged material at the Dredged Material Containment Facility (DMCF) at Masonville and at the proposed borrow area at Masonville.

Site water and elutriate preparation water was collected on two separate dates. Water collected on 21 November, 2005, was used to prepare elutriate tests for surface sediment at 5 locations in the vicinity of the proposed DMCF at Masonville. Approximately 27 gallons of water were collected for 5 elutriate tests and 1 site water sample. Water collected on 23 January, 2006, was used to prepare elutriate tests for borrow material at 7 locations. Approximately 40 gallons of water were collected on this date for 7 elutriate tests and 1 site water sample.

A.3.1 ELUTRIATE SAMPLING METHODS

The SET was performed following the procedures in the *ITM* (USEPA/USACE 1998) and requires both sediment and site water collections. For the SET, the laboratory creates the elutriate based on a sediment-to-water ratio of 1:4, on a volume basis. The sediment and site water volume requirements needed for the SET was dependent on the number and type of analytical tests to be performed on the elutriate.

A sediment/water mixture was thoroughly mixed for 30 minutes. The mixture was then allowed to settle, and the supernatant was siphoned off, filtered to remove particulates, and then analyzed for the dissolved chemical constituents specified in the Analytical Quality Assurance Project Plan (QAPP) (STL–Pittsburgh 2004). The reported results from the SET included a "dissolved" value for each of the target parameters to be determined.

Elutriate samples that were created and tested for the Masonville project are summarized in the table below. Standard elutriates were created for the Masonville locations using site water from location EB/ELU SW and sediment from five sediment core sampling locations (Figure A-2). The SET was completed for sample locations collected in November 2005 in the vicinity of the proposed DMCF at Masonville: EB/ELU-01A, EB/ELU-05A, EB/ELU-06, EB/ELU-08, and EB/ELU-09 (see table below). The SET was also completed for sample locations collected in January 2006 in the vicinity of the proposed borrow area at Masonville (Figure A-3) (see table below):

Summary of Masonville Standard Elutriate Samples Submitted For Analytical Testing in the Vicinity of the proposed DMCF:

Sediment Sample ID	Elutriate Preparation Water ID	Elutriate ID
MSNBOR05-01A	+ EB/ELU-SW	= EB/ELU-01A
MSNBOR05-05A	+ EB/ELU-SW	= EB/ELU-05A
MSNBOR05-06	+ EB/ELU-SW	= EB/ELU-06
MSNBOR05-08	+ EB/ELU-SW	= EB/ELU-08
MSNBOR05-09	+ EB/ELU-SW	= EB/ELU-09

Summary of Masonville Standard Elutriate Samples Submitted For Analytical Testing in the Proposed Borrow Area:

Sediment Sample ID	Elutriate Preparation Water ID	Elutriate ID
EB-01	+ EB/ELU-SW	= EB-1-ELUT
EB -09	+ EB/ELU-SW	= EB-2-ELUT
EB -10	+ EB/ELU-SW	= EB-3-ELUT
EB -11	+ EB/ELU-SW	= EB-4-ELUT
EB -12	+ EB/ELU-SW	= EB-5-ELUT
EB -13	+ EB/ELU-SW	= EB-6-ELUT
EB -14	+ EB/ELU-SW	= EB-7-ELUT

Standard elutriates were created for the Masonville locations using site water from location EB/ELU-SW and sediment from the five stations discussed above. Site water representative of conditions in the Patapsco River was collected from one location for the SET analysis. Approximately 5 gallons of site water was collected from location EB/ELU-SW in the Patapsco River. Site water was collected for chemical analyses and the preparation of composite elutriates was conducted at EA. Water samples targeted for chemical analysis (site water and equipment blanks) were shipped to STL–Pittsburgh analytical laboratory. Upon receipt at the analytical laboratory, the samples were checked against the chain-of-custody (COC), logged, and given a unique accession number. Samples were stored in walk-in refrigeration units (cooled to 4°C) following receipt and prior to analysis. The holding time for the site water samples and equipment blanks was initiated at the time of sample collection. Copies of COC forms for the site water, equipment blanks, and elutriate sample are provided in Attachment B of this Appendix. The elutriate preparation water was transported with the sediment cores from the site EA's Ecotoxiocology Laboratory facility in Sparks, Maryland via coolers iced to 4°C. The holding time for the elutriates was initiated at the completion of the elutriate preparation process.

A.3.2 ANALYTICAL METHODS AND DETECTION LIMITS

Site water, equipment blanks, and elutriates were analyzed for target analytes. Project-specific analytical methods and detection limits for aqueous samples are provided in Table A-4.

Comparison to USEPA and State of Maryland Water Quality Criteria

Analytes detected in the total and dissolved water samples were compared to USEPA and State of Maryland saltwater acute and chronic water quality criteria for aquatic life. Criteria were derived from USEPA's *National Recommended Water Quality Criteria (2004)* and the Code of Maryland Regulations (COMAR 26.08.02.03-2). The State of Maryland's saltwater acute and chronic water quality criteria for aquatic life are the same as the USEPA's, with the exception of copper, nickel, and selenium. State of Maryland water quality criteria exceedances are not explicitly identified in the following sections because, in general, concentrations of constituents that exceeded USEPA criteria also exceeded State of Maryland criteria. Specific exceedances of the State of Maryland water quality criteria for copper, nickel, and selenium are identified, where applicable, in the text below.

For copper only, the State of Maryland has developed ***estuarine*** water quality criteria (acute only) for copper, which is applicable in this study based on the salinities measured in the field. Detected concentrations of copper were compared to both the USEPA saltwater acute and chronic criteria and the State of Maryland's estuarine chronic water quality criterion in this study.

The USEPA's acute criterion is based on 1-hour average exposure concentrations, and the USEPA's chronic criterion is based on 4-hour average exposure concentrations.

The USEPA and State of Maryland acute and chronic saltwater quality criteria for metals were developed for *dissolved* metal concentrations, and are compared to total metals concentrations in this study as a conservative evaluation of the analytical results.

Calculations of Total PCBs, Total PAHs, and Dioxin TEQs

For each individual water sample, total PCB concentrations were determined by summing the concentrations of the 18 summation congeners (as specified in Table 9-3 of the ITM) and multiplying the total by a factor of 2. Multiplying by a factor of 2 estimated the total PCB concentration and accounted for additional congeners that were not tested as part of this program. These determinations were based upon testing of specific congeners recommended in the ITM and upon the NOAA (1993) approach for total PCB determinations.

Total PAH concentrations were determined for each sample by summing the concentrations of the individual PAHs. For both the total PCB and total PAH concentrations, 2 values are reported, each representing the following methods for treating concentrations below the analytical detection limit:

- Non-detects = 0 (ND = 0)
- Non-detects = 1/2 of the detection limit (ND = 1/2MDL)

Substituting one-half the detection limit for all non-detects (ND = 1/2MDL) provides a conservative estimate of the non-detected concentration. This method, however, tends to produce results that are biased high, especially in data sets where the majority of samples are non-detects. This overestimation is important to consider when comparing calculated total values to criterion.

The Toxicity Equivalency Quotients (TEQs) for dioxin and furan congeners were calculated following the approach in USEPA 1989. Each congener was multiplied by a World Health Organization (WHO) recommended Toxicity Equivalency Factor (TEF) for human health (Van den Berg et al. 1998) and then the congener concentrations were summed. Concentrations that were flagged with a "B" (detected in blank) or "EMPC" (estimated maximum possible concentration) were not included in the TEQ calculation as per the USEPA Region III dioxin validation guidance (USEPA Region III 1999). The dioxin TEQs were calculated using both ND=0 and ND=1/2RL.

Calculation of Acute and Chronic Ammonia (NH_3-N) Criteria

The USEPA acute and chronic criteria for determining the toxicity of ammonia (NH_3-N) to aquatic life were calculated from mid-depth averages based on the salinity (6.5 ppt), temperature (18.8°C), and pH (6.9) collected during the Fall 2004 fish and benthic surveys (not including the shallow seine site), conducted in October 2004 (from Table A-1).

For site water/elutriate preparation water collected from EB/ELU-SW, the USEPA acute and chronic criteria for determining the toxicity of ammonia to aquatic life were based on average water quality parameters recorded at mid-depth during the Fall 2004 fish and benthic surveys conducted in October 2004 – a salinity of 6.5 ppt, a temperature of 18.8ºC, and a pH of 6.9 was used. The calculated acute ammonia criterion for site water/elutriate preparation water collected from EB/ELU-SW was 69.3 mg/L, and the calculated chronic criterion was 10.4 mg/L.

A.3.3 RESULTS OF SITE WATER AND ELUTRIATE TESTING

A.3.3.1Surface Elutriate and Site Water Results

Results of the site water and standard elutriate chemical analyses for samples collected in the vicinity of the proposed DMCF at Masonville in November 2005 are presented in Tables A-5 through B-14. Concentrations of detected constituents in the site water and standard elutriates were compared to the USEPA acute and chronic criteria for aquatic life to determine if exceedences would occur and are also presented in Tables A-5 through A-14.

A.3.3.2Borrow Material Elutriates and Site Water Results

Results of the site water and standard elutriates for borrow material sediment collected from 7 locations within the proposed alignment at Masonville are presented in Tables A-15 through A-24. Elutriate preparation water for seven elutriate tests and one site water sample was collected on 23 January, 2006. Values for detected chemical constituents are shaded and bolded in the data tables. Detection limits are presented for non-detected chemical constituents.

Concentrations of detected constituents in the site water and standard elutriates were compared to the USEPA acute and chronic criteria for aquatic life to determine if exceedances would occur and are also presented in Tables A-15 through A-24.

A.4 NUTRIENT SAMPLING

Surface water samples for nutrient analysis were collected from four locations in the footprint of the Masonville project area as discussed in Chapter 2 of this report. Samples were collected and analyzed according to established Chesapeake Bay Water Quality Monitoring Protocols as defined in D'Elia *et al*. (1995) and CBP (1993) and compared to results collected from the CBP Patapsco River monitoring location (WT5.1). The seasonal nutrient analysis results collected by the CBP at monitoring location WT5.1 are located in Table A-25. The location of the monitoring station WT5.1 is shown in Figure A-1.

A.5 SEDIMENT SAMPLING

Sediment quality sampling consisted of physical and chemical characterization of the bulk sediment from locations near the proposed Masonville site (Figure A-4). Within and in the vicinity of the proposed alignment, surface sediment sampling was conducted during four separate field efforts – June 2003 (four locations), February 2004 (five locations), July 2004 (four locations), and June 2005 (five locations). Sediment borings from five locations were also collected during the June 2005 sampling, and the sediment chemistry of the borings at depth was characterized (Figure A-3). Methods for the surface sediment sampling within the vicinity of the proposed DMCF at Masonville are discussed below in Sections A.5.1 and A.5.2.

For the proposed borrow area, sediment sampling consisted of collecting samples of borrow material below unsuitable sediments at 7 locations (including two previously sampled) in January 2006. Methods for the borrow material are discussed below in Section A.5.3.

A.5.1 SURFACE SEDIMENT SAMPLING METHODS

The surface sediment samples were collected using an EA Engineering, Science, and Technology, Inc. (EA) 26-ft aluminum workboat equipped with a hydraulic winch. A large Van Veen grab sampler was used to obtain sediment at each location. The Van Veen sampler was decontaminated between sampling locations in order to prevent cross-contamination. After the boat was positioned on sampling location and anchored, the Van Veen was lowered to the bottom, triggered, and brought back on board. One sediment grab was collected at each location. Sub-samples of sediment were placed into appropriate sample jars and stored in a cooled (4°C) insulated container until submitted to the laboratory for analyses. Sediment samples were shipped by Federal Express to the analytical laboratory at the end of each workday. The COC forms for surface sediment sampling are included in Appendix A.

A.5.2 SEDIMENT CORE COLLECTION METHODS

Coring operations were conducted from a 100-ft spud barge positioned with a tugboat provided by Smith Shipyard, Inc. of Baltimore, Maryland. Findling, Inc., provided a drill rig placed on

the barge to facilitate collection of the core samples with a CME continuous sampler. Sampling equipment that came into direct contact with the sediment was decontaminated prior to sampling. The CME sampler was lined with 2-2.5 ft cellulose acetate butyrate (CAB) core liners and fitted with a stainless steel catcher at the bottom. Prior to deploying the CME, 4-ft sections of auger were drilled into the sediment by Findling crew. Once the augers were set to the desired sampling depths, the CME was lowered inside the augers, retrieved, and brought onto deck. The CME was then opened, the core liners were extracted, and the liners were capped and sealed at both ends. The liners were labeled with location ID, depth interval, and corresponding sediment chemistry ID. Boring logs from each location are located at the end of this section.

Five locations were initially sampled at the site (Figure A-4). Two locations, MSNBOR05-01 and MSNBOR05-05, were re-positioned and re-sampled due to inadequate recovery of sand. A geologist provided by Findling produced boring logs for each location. The boring logs for the sediment core collection effort are included in Attachment C of this Appendix.

Cores collected during each workday were stored in cooled, insulated containers onboard the barge or sampling platform. Cores were transferred to a refrigeration unit (cooled to 4°C) at EA in Sparks, Maryland at the end of each workday.

Holding times for the surface sediment samples began when the sediment was collected and placed in the appropriate sample containers. Holding times for the sediment samples began when the sediment was removed from the core liner, composited, homogenized, and placed in the appropriate sample containers. A total of approximately 1 gallon per location was required for each of the sampling composites for sediment chemistry and physical analyses. Sample containers, preservation techniques, and holding requirements for chemical analyses are provided in Table A-26. Equipment that came into direct contact with sediment during sampling was decontaminated prior to deployment in the field and between each channel reach to minimize cross-contamination. The COC forms for the collected sediment cores are included in Appendix A of this Appendix.

A.5.3 BORROW MATERIAL SAMPLING METHODS

In order to further quantify the level of constituents in “suitable” material drilling was completed at seven locations within the proposed dike alignment. Sampling was initiated on 30 November, 2005, and was completed on 24 January, 2006. Sediment and water samples were submitted to STL-Pittsburgh on 27 January, 2006.

Sampling of the borrow material was completed to define the constituent concentrations (ITM suite) of the top 10 feet of the borrow material. Samples were obtained of the top 2.5 feet; second 2.5 feet and bottom 5 feet of the initial 10 feet borrow material. Seven locations were sampled with a 3-inch continuous sampler provided by E2CR. Two locations that were previously sampled by EA in June 2005 (locations EB-01 and EB-09) were re-sampled due to exceedances of some analytes. Samples were obtained in the top 10-feet of the sand layers. Two 2.5-ft intervals and one 5-ft interval were sub-sampled at each location and submitted for analyses. A total of 22 borrow material sediment samples were submitted.

Borrow material characterization sampling was completed using a 3-inch split-spoon sampler (SPT) provided by E2CR. Drilling activities were completed aboard an 80-foot spud barge provided by Smith Brothers boat yard of Baltimore, Maryland. Smith Brothers also provided various tug boats to move the barge and position it at the 7 sampling locations.

Locations for sampling were chosen by personnel at EA and GBA. Prior to placing the barge/drilling rig on the sampling location a marker buoy was placed at the site by EA personnel from EA's work boat. Sampling locations were determined in the field using a Trimble ProXR DGPS. The ProXR uses the United States Coast Guard Differential Beacon System to augment the GPS satellite data and obtain differential accuracy of 1-3 meters.

Sediment samples were obtained by loading the SPT with 2.375 inch inner-diameter Cellulose Acetate Butyrate (CAB) plastic liner (to retain sediment samples for processing at a later date). Four-inch inner diameter augers were drilled into the sediment by E2CR personnel to the desired sample depths. The SPT was lowered to the bottom of the augers and brought back onto deck. The CAB liner was removed, capped, taped, and labeled with station ID, date, time, and length of sample recovery. Actual drilling location coordinates were recorded in a field log book. A geologist provided by E2CR produced boring logs for each location. The boring logs for the sediment core collection effort are included in Appendix C.

Cores collected during each workday were stored in cooled, insulated containers onboard the barge or sampling platform. Cores were transferred to a refrigeration unit (cooled to 4°C) at EA in Sparks, Maryland at the end of each workday. Holding times for the borrow material samples began when the sediment was removed from the core liner, composited, homogenized, and placed in the appropriate sample containers. Sample containers, preservation techniques, and holding requirements for chemical analyses are provided in Table A-16. Equipment that came into direct contact with sediment during sampling was decontaminated prior to deployment in the field and between each channel reach to minimize cross-contamination; decontamination procedures were utilized during sampling to avoid cross-contamination. The COC forms for the collected sediment cores are included in Appendix B.

A.5.4 ANALYTICAL METHODS FOR ALL SEDIMENT SAMPLES

Target analytes, target detection limits, methodologies, elutriate preparation procedures, and sample holding times were derived from the following guidance documents:

- USEPA/USACE, 1998 (EPA-823-B-98-004). *Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S.–Testing Manual (Inland Testing Manual–ITM).*

- USEPA/USACE, 1995 (EPA-823-B-95-001). *QA/QC Guidance for Sampling and Analysis of Sediment, Water, and Tissue for Dredged Material Evaluations.*

All inorganic and organic compounds for these projects were determined using the methods listed in Table A-4 as described in the laboratory's analytical SOPs. To meet program-specific

regulatory requirements for chemicals of concern, all methods/SOPs were followed as stated with some specific requirements noted below:

Polychlorinated Biphenyl (PCB) Congeners

PCBs for these projects were analyzed and quantified as individual congeners by SW846 Method 8082. The 26 congeners included all of the "summation" and "highest priority" congeners, plus several of the "secondary priority" congeners, specified in Table 9-3 of the ITM.

Because of matrix interferences common in tissue analysis, the following clean-ups as noted in Table A-4 were employed as necessary: sulfuric acid cleanup, sulfur cleanup using TBA, and GPC.

Total Organic Carbon (TOC)

TOC in sediments was determined using the 1988 USEPA Region II combustion oxidation procedure (the Lloyd Kahn procedure).

Polynuclear Aromatic Hydrocarbons (PAHs)

To achieve the target detection limits (TDLs) referenced in QA/QC Guidance for Sampling and Analysis of Sediments, Water, and Tissues for Dredged Material Evaluations - Chemical Evaluations (EPA 823-B-95-001, April 1995), the PAHs were determined utilizing SW846 Method 8270C using Selective Ion Monitoring (SIM). For those samples where both semivolatiles by SW846 Method 8270C and PAHs by SW846 Method 8270C SIM are requested, both analyses were performed on the same extract. For those samples, the evaluation of method performance was based on the determined recoveries of surrogates and control analytes (in the LCS and MS/MSDs) from the semivolatiles by 8270C (full scan GC/MS) analyses because the spiked concentrations exceeded calibration range for the PAH by GC/MS SIM analyses.

Metals

Metals were determined utilizing Inductively Coupled Plasma (ICP) or Inductively Coupled Plasma/Mass Spectrometry (ICP/MS) according to the methodology specified, with the following exceptions:

- For mercury, samples were analyzed by Cold Vapor Atomic Absorption (CVAA) method [SW846 7471A (sediment)].

Polychlorinated Dioxins/Furans

Dioxin and furan congeners for the sediment, site water, and elutriate samples were reported as 17 individual isomers using method EPA 1613. Dioxin and furan congeners for the tissue samples were reported as 17 individual isomers using method SW846 8290. The results were reported based on a sample specific estimated detection limit (EDL), which takes into account matrix interferences and provides the most accurate limit of detection for each sample.

Acid Volatile Sulfides (AVS) and Simultaneously Extracted Metals (SEM)

The AVS and SEM determinations were performed following the procedures specified in the USEPA April 1991 *Draft Analytical Method for the Determination of Acid Volatile Sulfide in Sediment.* The concentrations of five SEMs - cadmium, copper, lead, nickel, and zinc -were determined, and the reported values for both AVS and SEM were in μmoles/gram.

Using this method, the five metals (cadmium, copper, lead, nickel, and zinc) were extracted, measured, and added together (including any values that are "B" or "J" qualified). If a metal was not detected (ND), it was considered a zero in the calculation. The sum of the concentrations of these five metals was then compared to the amount of AVS detected in the same sediment sample. The total SEM concentration was divided by the AVS concentration, and the resulting value is the SEM/AVS ratio. If AVS was not detected (ND) in the sample, the SEM/AVS ratio was not calculated.

A.5.5 SEDIMENT DATA ANALYSIS

Calculation of the Simultaneously Extracted Metals (SEM) / Acid Volatile Sulfides (AVS) Ratio

The bioavailability of divalent metals to aquatic organisms is influenced by the ratio of simultaneously extracted metals (SEM) / acid volatile sulfides (AVS). In low oxygenated environments, metals may precipitate with sulfides, making them unavailable for uptake by aquatic organisms. Using this method, five metals (cadmium, copper, lead, nickel, and zinc) were extracted, measured, and added together (including any values that are "B" or "J" qualified). If a metal is not detected (ND), it was considered a zero in the calculation. The sum of the concentrations of these five metals as then compared to the amount of AVS detected in the same sediment sample. If AVS ass not detected (ND) in the sample, the SEM/AVS ratio was not calculated.

Calculations for Total PCBs, Total PAHs, and Dioxin TEQs

For each sample, total PCB concentrations were determined by summing the concentrations of the 18 summation congeners (as specified in Table 9-3 of the ITM) and multiplying the total by a factor of two. Multiplying by a factor of two estimated the total PCB concentration and accounted for additional congeners that were not tested as part of this program. These determinations were based upon testing of specific congeners recommended in the ITM and upon the National Oceanic and Atmospheric Administration (NOAA 1993) approach for total PCB determinations.

Total PAH concentrations were determined for each sample by summing the concentrations of the individual PAHs. For both the total PCB and total PAH concentrations, two values were reported, each representing the following methods for treating concentrations below the analytical detection limit:

- Non-detects = 0 (ND=0)

- Non-detects = 1/2 of the detection limit (ND=½DL)

Substituting one-half the detection limit for non-detects (ND=½DL) provides a conservative estimate of the concentration. This method, however, tends to produce results that are biased high, especially in data sets where the majority of samples are non-detects. This overestimation is important to consider when comparing the calculated total values to criteria values.

The Toxicity Equivalency Quotients (TEQs) for dioxin and furan congeners were calculated following the approach in USEPA 1989. Each congener was multiplied by the International Toxicity Equivalent Factors (I-TEF/89) (USEPA 1989), and then the congener concentrations were summed. Concentrations that were flagged with a "B" (detected in blank) or "EMPC" (estimated maximum possible concentration) were not included in the TEQ calculation as per the USEPA Region III dioxin validation guidance (USEPA Region III 1999). The dioxin TEQs were calculated using both ND=0 and ND=1/2DL.

Comparison to Sediment Quality Guidelines (SQGs)

Sediment quality guidelines are numerical chemical concentrations intended to either be protective of biological resources, or predictive of adverse effects to those resources, or both (Wenning and Ingersoll 2002). USACE's guidance on using SQGs in dredged material management acknowledges the limitations of each approach used to derive SQGs to date, but concludes that SQGs are still useful as initial screening values in Tier 1 or Tier 2 assessments. If, based on the initial screening using established SQGs, there is a 'reason to believe' that the material is not contaminated, no further chemical or toxicological testing would be necessary as indicated by the ITM [USACE–Waterways Experiment Station (WES) 1998].

The SQGs were developed as informal (non-regulatory) guidelines for use in interpreting chemical data from analyses of sediments. Several biological-effects approaches have been used to assess marine/estuarine sediment quality relative to the potential for adverse effects on benthic organisms, including Threshold Effects Level (TEL) / Probable Effects Level (PEL) (MacDonald et al. 1996) approach. The TEL and PEL values were derived using concentrations with both effects and no observed effects (Long and Macdonald 1998). TELs typically represent concentrations below which adverse biological effects were rarely observed, while PELs typically represent concentrations in the middle of the effects range and above which effects were more frequently observed (Long and Macdonald 1998). Concentrations that are between the TEL and PEL represent the concentrations at which adverse biological effects occasionally occur.

Concentrations of detected analytes in sediment samples from Masonville samples were compared to SQGs (MacDonald et al. 1996) for marine sediments to assess the sediment quality of the material proposed for dredging. SQGs were used to identify potential adverse biological effects associated with contaminated sediments. TEL and PEL values for marine/estuarine sediments are provided in Table A-27.

Recent evaluations of large chemical and toxicity data sets (O'Connor et al. 1998; O'Connor and Paul 1999) have indicated that TEL/PEL screening is not a reliable method for predicting sample toxicity or for screening samples out as non-toxic. The studies indicate that:

- Not exceeding a TEL should reliably predict the absence of whole-sediment toxicity,
- Exceeding a PEL (much less a TEL) does not reliably indicate toxicity, and
- Many, perhaps even most, sediments that exceed one or more PELs are not toxic.

Since TELs/PELs are widely used despite their recently demonstrated over-sensitivity in predicting toxicity, the concentrations of contaminants in the sediments sampled in this project were compared to the TEL and PEL values for all chemical constituents for which TEL/PEL values have been developed. For dredged material evaluations, SQGs are used as a tool to assist with identification of constituents of potential concern (COPCs) and to provide additional weight of evidence in the evaluation [USACE–WES 1998].

A.5.6 BULK SEDIMENT RESULTS

A.5.6.1Surface Sediment Results

Results of the bulk sediment chemistry analyses for surface sediment collected from within the proposed alignment at Masonville are presented in Tables A-28 through A-39, and results for surface sediments collected from the Kurt Iron Metal (KIM) channel, Masonville Cove, and the Wet Basin are presented in Tables A-40 through A-51. Sediment chemistry results for samples collected at depth are presented in Tables A-52 through A-63.

Sample weights were adjusted for percent moisture (up to 50 percent moisture) prior to analysis to achieve the lowest possible detection limits. Analytical results are reported on a dry weight basis. Values for detected chemical constituents are shaded and bolded in the data tables. Detection limits are presented for non-detected chemical constituents.

A.5.6.2Borrow Material Sediment Results

Results of the bulk sediment chemistry analyses for proposed borrow material sediment collected from within the proposed alignment at Masonville are presented in Tables A-64 through A-75.

Sample weights were adjusted for percent moisture (up to 50 percent moisture) prior to analysis to achieve the lowest possible detection limits. Analytical results are reported on a dry weight basis. Values for detected chemical constituents are shaded and bolded in the data tables. Detection limits are presented for non-detected chemical constituents.

A.6 CHESAPEAKE BAY APPROACH CHANNEL COMPARISONS

The mean, minimum, and maximum concentrations of metals, PAHs, PCBs, dioxins, furans, and chlorinated pesticides in surface sediments collected from the upper Chesapeake Bay approach channels to the Port of Baltimore were analyzed and are included in Table A-76. These data were collected from the Upper Chesapeake Bay approach channels during sampling conducted in

1998, 1999 and 2002 for upper Chesapeake Bay approach channels currently placed at Poplar Island (EA 2000a, EA 2000b, EA 2003).

A.7 SEAGIRT BORROW MATERIAL ANALYSIS

An analysis of the proposed Seagirt Borrow Material is available and can be found in Attachment A-3 of this Appendix.

A.8 REFERENCES

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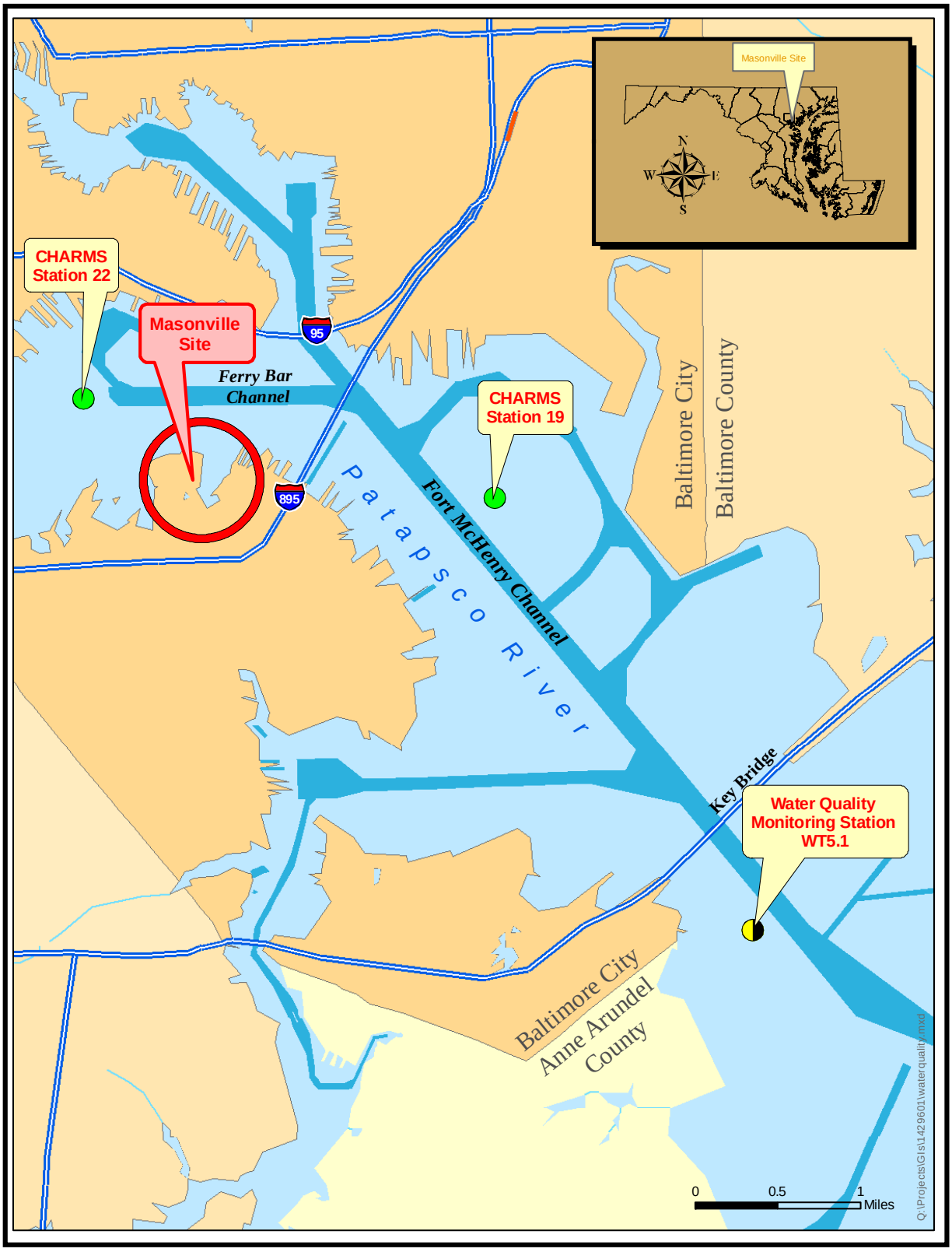

Figure A-1. Location of CBP Water Quality Monitoring Station WT5.1 and Comprehensive Harbor Assessment and Regional Modeling Study (CHARMS) Stations 19 and 22

Figure A-2. Masonville Standard Elutriate Sampling Locations

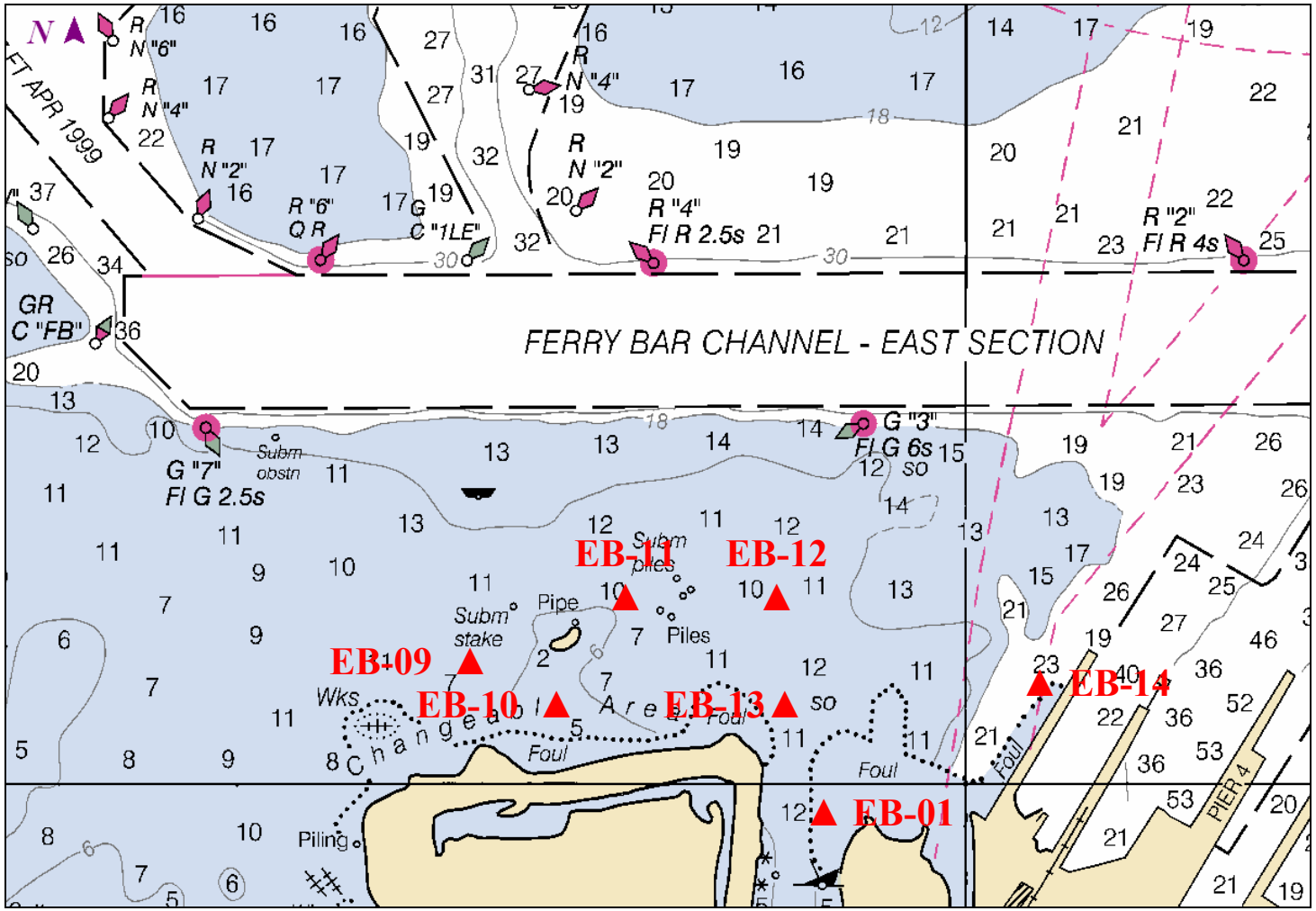

Figure A-3. Sampling Locations for Proposed Masonville Borrow Material.

Figure A-4. Sediment Sampling Locations

TABLE A-1. MASONVILLE *IN SITU* WATER QUALITY

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HABOR, MARYLANE

						TEMP. (°C)			D.O. (MG/L)			SALINITY (PPT)			pH			TURBIDITY (NTU)		
						S	M	B	S	M	B	S	M	B	S	M	B	S	M	B
YEAR	DATE	SEASON	SAMPLE ID	SAMPLE DISCIPLINE	LOCATION DEPTH (FT)															
			SAMPLE DEPTH* =																	
2003	June	SUMMER	M-B1	BENTHIC	12.0	25	24.3	22.3	11.2	9.6	5.9	3.8	4.1	4.8	8.4	8	7.8	--	--	--
2003	June	SUMMER	M-B2	BENTHIC	10.0	25.2	24.7	22.1	12.6	11.1	5.2	3.6	3.6	4.8	8.5	8.3	7.9	--	--	--
2003	June	SUMMER	M-B3	BENTHIC	9.0	24.9	24.9	23.3	11.6	11.3	8.5	3.5	3.5	4.4	8.2	8.3	7.9	--	--	--
2003	June	SUMMER	M-B4	BENTHIC	9.0	24.9	24.1	20.6	13.1	10.4	2.6	3.5	3.7	5.2	8.6	8.3	7.6	--	--	--
2004	May	SPRING	M-B4	BENTHIC	7.0	26.1	25.7	24.2	10	8.9	6.1	2.2	2.2	2.4	8.4	8.4	7.6	9.2	9.3	19.4
2004	May	SPRING	M-T1	FISHERIES	13.0	25.4	21.5	18.6	11.6	13.5	8.2	2.4	2.8	3.8	8.6	8.8	7.5	6.9	9.5	12.2
2004	May	SPRING	M-T2	FISHERIES	13.0	24.6	20.1	19.9	11.7	10.9	10.2	2.4	3.3	3.4	8.5	8.1	8	6.5	5.2	5.4
2004	May	SPRING	M-S1	FISHERIES	3.0	25.9	--	25.6	11.1	--	10.7	2.6	--	2.6	8.6	--	8.5	10.3	--	9.8
2004	May	SPRING	M-G1	FISHERIES	17.0	24.5	24	23.5	11.8	11	9.9	2.3	2.5	2.7	8.9	8.6	8.3	7.6	7	3.8
2004	May	SPRING	M-G2	FISHERIES	7.0	24.4	24.2	20.6	10.3	10.5	9.7	2.1	2.1	3.3	7.9	8	7.8	6.8	6.9	13.2
2004	July	SUMMER	M-B5	BENTHIC	9.3	28.5	26.8	26.5	10.5	6.6	4	3.1	3.7	5.1	8.6	8.1	7.6	33.1	35.6	12
2004	July	SUMMER	M-B6	BENTHIC	9.3	29.2	26.8	26.5	11.6	5.9	3.8	2.8	3.9	6	8.7	8.2	7.8	35.8	35.6	16.9
2004	July	SUMMER	M-B7	BENTHIC	13.0	26.8	26.7	26.4	9.1	9.1	6.6	6.1	6.2	6.4	8.4	8.4	8	5.7	5.8	11.8
2004	July	SUMMER	M-B8	BENTHIC	14.0	26.8	26.6	26.4	8.9	6.8	4.1	6.1	6.4	6.2	8.4	8.1	7.8	6.1	8.3	8.9
2004	July	SUMMER	M-B9	BENTHIC	7.2	27.1	26.9	26.6	7.0	5.7	4.6	3.3	4.7	6.1	7.9	7.7	7.5	30.8	20.3	13.3
2004	July	SUMMER	M-T1A	PLANKTON	14.0	--	26.7	--	--	7.5	--	--	6.1	--	--	8.0	--	--	8.6	--
2004	July	SUMMER	M-T1B	PLANKTON	14.0	--	26.7	--	--	7.4	--	--	6.1	--	--	8.0	--	--	4.1	--
2004	July	SUMMER	M-T2A	PLANKTON	13.0	--	27	--	--	5.3	--	--	5.9	--	--	8.2	--	--	8.3	--
2004	July	SUMMER	M-T2B	PLANKTON	13.0	--	27	--	--	6.2	--	--	6.1	--	--	8.3	--	--	6	--
2004	July	SUMMER	M-B5-SED	SEDIMENT	9.0	26.2	--	26	8.6	--	5.2	5.8	--	6.5	8	--	7.9	5.1	--	9.1
2004	July	SUMMER	M- B6-SED	SEDIMENT	9.0	25.8	--	25.7	7.4	--	5.7	5.9	--	5.9	8	--	7.8	5.3	--	5.7
2004	July	SUMMER	M-B7-SED	SEDIMENT	11.0	26	--	25.3	6.6	--	4.6	6.3	--	6.9	7.9	--	7.8	10.9	--	14.1
2004	July	SUMMER	M-B8-SED	SEDIMENT	12.0	25.9	--	25.5	6.4	--	5.4	6.5	--	6.9	7.9	--	7.8	14.9	--	6.5
2004	October	FALL	M-B4	BENTHIC	8.1	16.4	17.1	18.2	8.5	7.9	7.6	9.8	8.1	4.8	7.02	7.7	8.2	0.9	5.3	6.5
2004	October	FALL	M-T1	FISHERIES	13.0	19.4	20.4	21.9	8.1	7.6	7.2	9.8	6.2	2	4.5	5.8	7.9	4.3	0.2	4.2
2004	October	FALL	M-T2	FISHERIES	11.0	19.8	20.6	21.9	8.2	7.6	7.3	9.9	6.0	4.7	4.9	6.1	7.8	5.3	3.6	7.5
2004	October	FALL	M-G2	FISHERIES	10.0	17.2	17.2	17.4	7.6	7.6	7.3	6.6	5.7	4.3	7.8	7.9	6	1.2	4.3	3.9
2004	October	FALL	M-S1	FISHERIES	1.5	--	20.1	--	--	8.4	--	--	11.1	--	--	3.5	--	--	9.3	--
2005	May	SPRING	M(KI)-G1**	FISHERIES	8.0	17.99	17.95	17.53	5.1	5.29	4.62	5.14	5.15	5.8	8.56	8.57	8.14	7.8	7.8	14.9
2005	May	SPRING	M(WB)-G1**	FISHERIES	22.0	17.4	16.94	15.26	7.03	6.89	5.44	5.74	6	6.91	8.64	8.41	7.91	5.3	3.8	5.1
2005	6/28	SUMMER	MSN05-1	BENTHIC	7.5	26.88	26.57	26.18	6.41	4.89	3.42	5.63	6.44	6.53	7.8	7.6	7.36	5.1	5.6	6.8
2005	6/28	SUMMER	MSN-05-2	BENTHIC	8.7	26.91	26.41	25.92	7.85	5.68	3.83	6.07	6.51	6.63	8.09	7.73	7.48	3.3	4.1	7.0
2005	6/29	SUMMER	MSN05-4	BENTHIC	6.8	26.91	26.65	26.48	7.74	6.07	5.07	6.13	6.52	6.56	8.07	7.79	7.56	3.3	3.5	4.0
2005	6/29	SUMMER	MSN05-3	BENTHIC	7.5	27.08	26.53	26.06	9.33	8.79	8.48	6.34	6.52	6.64	7.93	7.72	7.39	3.4	4.4	6.6
2005	6/20	SUMMER	MSN05-01 (KI)	SEDIMENT	10.87	23.35	21.98	22.10	10.39	6.57	6.64	5.38	5.90	5.98	8.42	8.02	7.71	3.5	16.6	13.7
2005	6/21	SUMMER	MSN05-05	SEDIMENT	9.8	23.09	22.25	22.01	9.49	8.54	3.19	6.10	6.68	6.86	7.92	7.91	7.46	4.4	4.4	8.5
2005	6/22	SUMMER	MSN05-06	SEDIMENT	11.45	23.14	23.14	22.70	11.26	9.61	7.19	6.54	6.56	6.73	8.07	8.04	7.73	6.0	6.2	9.6
2005	6/23	SUMMER	MSN05-08	SEDIMENT	12.8	23.26	22.4	21.88	11.2	8.29	5.14	6.55	7.08	7.33	8.14	7.78	7.42	6.1	4.8	6.0
2005	6/24	SUMMER	MSN05-09	SEDIMENT	7.9	23.88	22.94	22.65	8.92	7.72	5.97	5.82	6.31	6.44	8.03	7.89	7.60	4.0	8.2	10.6
2005	6/27	SUMMER	MSN05-01A (KI)	SEDIMENT	12	26.14	26.10	25.52	8.50	8.09	7.62	6.29	6.36	6.36	8.09	8.12	8.02	5.1	5.2	9.7
2005	6/28	SUMMER	MSN05-05A	SEDIMENT	8.6	26.57	25.70	25.40	8.39	6.25	5.12	6.40	6.72	6.78	8.24	7.91	7.66	4.0	8.4	8.8
2005	8/31	SUMMER	KI-G2	FISHERIES	11	26.60	26.59	26.57	5.18	4.79	4.78	8.91	8.92	8.93	7.74	7.66	7.62	--	--	--
2005	8/31	SUMMER	KI-G1	FISHERIES	--	26.60	26.59	26.57	5.18	4.79	4.78	8.91	8.92	8.93	7.74	7.66	7.62	--	--	--
2005	9/1	SUMMER	WB-G1	FISHERIES	19	26.72	26.65	26.73	9.06	5.48	4.91	8.40	8.70	8.82	8.37	7.86	7.71	--	--	--

* S = surface, M = mid-depth, B = 0.5 ft above bottom

**KI = Kurt Iron Site, WB = Wet Basin Site

TABLE A-2. WATER QUALITY AT CHESAPEAKE BAY PROGRAM MONITORING LOCATI(

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HABOR, MARYLA

ANALYTE	SAMPLING SEASON	UNITS	MINIMUM	MAXIMUM	AVERAGE
WATER TEMPERATURE	Fall (September, October, and November)	ºC	7.5	27.2	18.8
pH		SU	7.2	8.6	7.85
DISOLVED OXYGEN		mg/L	2.9	14.8	8.15
SALINITY		PPT	1.71	15.54	10.2
WATER TEMPERATURE	Winter (December, January, and February)	ºC	0.7	12.3	4.48
pH		SU	7.4	9.3	7.98
DISOLVED OXYGEN		mg/L	5	15.7	11.7
SALINITY		PPT	1.97	16.56	9.47
WATER TEMPERATURE	Spring (March, April, and May)	ºC	2.5	25.4	12.6
pH		SU	6.6	9.2	8.00
DISOLVED OXYGEN		mg/L	1.3	17.4	9.99
SALINITY		PPT	1.51	14.73	6.44
WATER TEMPERATURE	Summer (June, July, and August)	ºC	20	29.5	25.4
pH		SU	6.9	9.1	7.99
DISOLVED OXYGEN		mg/L	0.2	15	7.49
SALINITY		PPT	2.08	13.26	7.40

Source : Chesapeake Bay Program Water Quality Monitoring Program, Annapolis, MD.

*Monitoring location WT5.1 is located in the Patapsco River, is tidally influenced, mesohaline, and approximately 40 ft deep.

TABLE A-3. BACKGROUND LEVELS OF SEASONAL WATER QUALITY CHEMISTRY FOR CHARM STATIONS 19 AND 22
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HABOR, MARYLAND

Analyte	Fall Sampling Results					
	Total		Dissolved		Particulate	
	Mean	Range	Mean	Range	Mean	Range
Polynuclear Aromatic Hydrocarbons (PAHs)	286	107 to 487	111	41 to 299	175	66 to 412
Polychlorinated Biphenyls (PCBs)	7.95	5.13 to 12.41	0.71	0.33 to 1.57	7.23	4.45 to 10.84
Chlordane	10.94	3.92 to 15.88	0	0 to 0.01	12.01	2.33 to 48.22
Aluminum	51.29	19.07 to 85.78	3.01	1 to 7.12	48.28	14.14 to 78.66
Chromium	6.44	5.26 to 7.05	5.17	0.32 to 6.87	2.28	0.39 to 6.04
Mangenese	99	58.48 to 124.2	51.17	27.88 to 87.04	47.82	28.88 to 72.50
Iron	3.14	2.77 to 3.62	2.29	2.03 to 2.85	0.85	0.1 to 1.59
Cobalt	1.05	0.95 to 1.11	0.81	0.2 to 1.02	0.24	0.06 to 0.90
Nickel	3.19	2.06 to 3.84	0.51	0.04 to 1.10	8.86	7.22 to 10.43
Copper	8.87	7.22 to 10.43	7.15	1.39 to 10.29	1.72	0.03 to 7.74
Zinc	14.98	12.42 to 16.52	11.69	8.66 to 15.68	4.14	2.67 to 7.35
Cadmium	0.34	0.03 to 0.87	0.33	0.03 to 0.93	0.28	0.02 to 0.54
Lead	1.63	0.10 to 4.34	1.06	0.10 to 2.77	1.78	1.04 to 2.52
Mercury	4.77	2.35 to 6.49	0.41	0.15 to 0.80	4.36	2.05 to 6.13

Analyte	Spring Sampling Results					
	Total		Dissolved		Particulate	
	Mean	Range	Mean	Range	Mean	Range
Polynuclear Aromatic Hydrocarbons (PAHs)	134	46 to 301	35	4 to 48	107	42 to 250
Polychlorinated Biphenyls (PCBs)	8.5	2.22 to 14.37	0.95	0.17 to 1.94	7.6	1.75 to 12.96
Chlordane	14.01	2.33 to 48.22	7.05	2.18 to 10.21	3.89	1.51 to 7.69
Aluminum	--	--	7.17	7.17 to 7.17	--	--
Chromium	--	--	0.39	0.32 to 0.48	--	--
Mangenese	--	--	30.6	0.40 to 69.19	--	--
Iron	--	--	1.78	0.58 to 2.65	--	--
Cobalt	--	--	0.24	0.20 to 0.30	--	--
Nickel	--	--	1.65	0.48 to 2.52	--	--
Copper	--	--	0.86	0.472 to 1.40	--	--
Zinc	--	--	8.66	8.66 to 8.66	--	--
Cadmium	--	--	0.31	0.31 to 0.31	--	--
Lead	--	--	0.5	0.50 to 0.50	--	--
Mercury	--	--	--	--	--	--

Analyte	Summer Sampling Results					
	Total		Dissolved		Particulate	
	Mean	Range	Mean	Range	Mean	Range
Polynuclear Aromatic Hydrocarbons (PAHs)	58	53 to 62	35	26 to 43	23	11 to 35
Polychlorinated Biphenyls (PCBs)	5.04	4.53 to 5.55	2.23	1.147 to 3.31	238	1.22 to 4.41
Chlordane	--	--	--	--	--	--
Aluminum	--	--	7.17	7.17 to 7.17	--	--
Chromium	--	--	0.32	0.32 to 0.32	--	--
Mangenese	--	--	4.4	2.18 to 6.62	--	--
Iron	--	--	1.53	1.07 to 1.99	--	--
Cobalt	--	--	0.14	0.14 to 0.14	--	--
Nickel	--	--	1.58	1.07 to 2.08	--	--
Copper	--	--	2.27	1.81 to 2.73	--	--
Zinc	--	--	8.71	8.66 to 8.76	--	--
Cadmium	--	--	0.31	0.31 to 0.31	--	--
Lead	--	--	0.5	0.50 to 0.50	--	--
Mercury	--	--	--	--	--	--

TABLE A-4. ANALYTICAL METHODS

Parameter	Method	Method #	Matrix	Reference
ORGANICS - EXTRACTION CLEANUP				
Sulfuric Acid Cleanup	Liquid-liquid Partitioning	3665A	S	USEPA, 1997
Sulfur Cleanup	Treatment with Cu or Hg or TBA	3660A/B	S	USEPA, 1997
Florisil Cleanup	Adsorption Column Chromatography	3620B	S	USEPA, 1997
ORGANICS				
Volatile Organic Compounds	Gas Chromatography/Mass Spectrometry	8260B	S	USEPA, 1997
Semivolatile Organic Compounds	Gas Chromatography/Mass Spectrometry	8270C	S	USEPA, 1997
Polynuclear Aromatic Hydrocarbons (PAH)	Gas Chromatography/Mass Spectrometry-SIM	8270C-SIM	S	USEPA, 1997
Organochlorine Pesticides	Gas Chromatography - ECD	8081A	S	USEPA, 1997
Organophosphous Pesticides	Gas Chromatography – FPD	8141A	S	USEPA, 1997
Organotins	Gas Chromatography – FPD	STL SOP	S	----
PCB (Aroclors & Congeners)	Gas Chromatography - ECD	8082	S	USEPA, 1997
Polychlorinated Dioxins/Furans	HRGC/HRMS	1613	S	USEPA, 1994
METALS				
Aluminum	Atomic Emission - ICP	6010B	S	USEPA, 1997
Antimony	Atomic Emission - ICP	6010B	S	USEPA, 1997
Arsenic	Atomic Emission - ICP	6010B	S	USEPA, 1997
Beryllium	Atomic Emission –ICP	6010B	S	USEPA, 1997
Cadmium	Atomic Emission –ICP	6010B	S	USEPA, 1997
Chromium	Atomic Emission –ICP	6010B	S	USEPA, 1997
Cobalt	Atomic Emission –ICP	6010B	S	USEPA, 1997
Copper	Atomic Emission –ICP	6010B	S	USEPA, 1997
Iron	Atomic Emission - ICP	6010B	S	USEPA, 1997
Lead	Atomic Emission - ICP	6010B	S	USEPA, 1997
Mercury	Atomic Absorption - Cold Vapor	7471A	S	USEPA, 1997
Manganese	Atomic Emission - ICP	6010B	S	USEPA, 1997
Nickel	Atomic Emission –ICP	6010B	S	USEPA, 1997
Selenium	Atomic Emission - ICP	6010B	S	USEPA, 1997
Silver	Atomic Emission - ICP	6010B	S	USEPA, 1997
Thallium	Atomic Emission - ICP	6010B	S	USEPA, 1997
Tin	Atomic Emission - ICP	6010B	S	USEPA, 1997
Zinc	Atomic Emission - ICP	6010B	S	USEPA, 1997

TABLE A-4. (continued)

INORGANIC NONMETALS				
Cyanide, Total	Colorimetric - Automated	9012A	S	USEPA, 1997
Sulfide, total	Distillation/Titrimetric	9030B/9034	S	USEPA, 1997
Total Organic Carbon	Combustion Oxidation	Lloyd Kahn	S	USEPA, 1988
Nitrogen, Ammonia	Colorimetric - Automated	350.1	S	USEPA, 1979
Nitrogen, Total Kjeldahl	Colorimetric	351.2	S	USEPA, 1979
Nitrogen, Nitrate + Nitrite	Colorimetric- Automated	353.2	S	USEPA, 1979
Nitrogen, Nitrate	Colorimetric- Automated	353.2	S	USEPA, 1979
Phosphorus, Total	Colorimetric	365.2	S	USEPA, 1979
AVS/SEM	----------	------	S	USEPA, 1991
Biochemical Oxygen Demand	BOD (5 day, 20 C)	405.1	S	USEPA, 1979
Chemical Oxygen Demand	Colorimetric- Manual	410.4	S	USEPA, 1979
Hexavalent Chromium	Colorimetric	7196A	S	USEPA, 1997
Oil & Grease	Gravimetric	1664	S	USEPA, 1999
pH	Electrometric	9045C	S	USEPA, 1997
Asbestos	Microscopy	PLM	S	

Matrix codes:
S - Sediments

References:

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TABLE A-4. (continued)

USEPA, 1994 United States Environmental Protection Agency. 1994. Tetra- Through Octa- Chlorinated Dioxins and Furans by Isotope dilution HRGC/HRMS. Method 1613 Revision B. EPA 821-B-94-005. USEPA, Office of Water, Washington DC.

USEPA, 1997 United States Environmental Protection Agency. June 1997. Test Methods for Evaluating Solid Waste. Physical/Chemical Methods. USEPA SW-846, 3rd edition, including Final Update III. USEPA, Washington, D.C.

USEPA, 1999b United States Environmental Protection Agency. February 1999. Revision A: N-Hexane Extractable Material (HEM; Oil & Grease) and Silica Gel Treated N-Hexane Extractable Material (SGT-HEM; Non-polar Material) by Extraction and Gravimetry. EPA-821-R-98-002.

TABLE A-5. GENERAL CHEMISTRY PARAMETERS OF SITE WATER AND STANDARD ELUTRIATES
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HABOR, MARYLAND

ANALYTE	UNITS	AVGDL	USEPA ACUTE CRITERIA*	USEPA CHRONIC CRITERIA*	EB/ELU SW (Elutriate Prep Water)	EB/ELU 01A	EB/ELU 05A	EB/ELU 06	EB/ELU 08	EB/ELU 09
AMMONIA (NH3), AS N (a)	MG/L	0.049	69.3	10.4	**0.25**	**2.9 J**	**3.9 J**	**3.2 J**	**2.5 J**	**4.1 J**
BIOCHEMICAL OXYGEN DEMAND	MG/L	0.79	--	--	**12.2**	0.79 U	0.79 U	**14.5**	0.79 U	**2.3**
CHEMICAL OXYGEN DEMAND	MG/L	28	--	--	**138**	**110**	**74.3**	**79.5**	**69.2**	**64**
DISSOLVED CYANIDE	UG/L	4.3	--	--	**2.6****	**5.2 B**	4.3 U	4.3 U	**18.6**	4.3 U
HEXAVALENT CHROMIUM	MG/L	0.0018	1.1	0.05	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U
NITRATE + NITRITE AS N	MG/L	0.01	--	--	**0.71 J**	**0.18 J**	**0.51 J**	**0.37 J**	**0.47 J**	**0.25 J**
NITROGEN, TOTAL KJELDAHL NITROGEN AS N	MG/L	0.97	--	--	**2.7 B**	**14.1 J**	**7.1 J**	**4.9 J**	**4.9 J**	**4.3 J**
PH	NO UNITS	0.1	--	--	**7.5**	**7.7**	**7.8**	**7.7**	**7.8**	**7.6**
PHOSPHORUS	MG/L	0.044	--	--	**0.085 B**	**0.089 B**	**0.95**	**0.053 B**	0.044 U	**0.053 B**
SULFIDE	MG/L	1.2	--	0.002	1.2 U	1.2 U b	1.2 U b	1.2 U b	1.2 U b	1.2 U b
TOTAL ORGANIC CARBON	MG/L	0.31	--	--	4.3 U	**3.2**	**3.4**	**3.2**	**4.9**	**3.3**

**Source:* USEPA 2004. *Recommended Water Quality Criteria*

(a) ammonia criteria for Patapsco River samples based on average salinity (6.5 ppt), water temperature (18.8 C), and pH (6.9) from mid-depth of the water column during the 2004 fish and benthic surveys

**Analyzed as total, not dissolved cyanide

NOTE: Shaded and bold values represent detected concentrations.

U = compound was analyzed but not detected

J (inorganic) = compound was detected in method blank

B (inorganic) = compound was detected, but below reporting limit (value is estimated).

TABLE A-6. METAL CONCENTRATIONS (UG/L) IN SITE WATER AND STANDARD ELUTRIATES
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HABOR, MARYLAND

ANALYTE	UNITS	AVGDL	USEPA ACUTE CRITERIA*	USEPA CHRONIC CRITERIA*	EB/ELU SW (Elutriate Prep Water)	EB/ELU 01A	EB/ELU 05A	EB/ELU 06	EB/ELU 08	EB/ELU 09
ALUMINUM	UG/L	8	--	--	**196 B J**	**290 J**	**220 J**	**330 J**	**140 B J**	**200 J**
ANTIMONY	UG/L	3.2	--	--	3.2 U	**6 B**	**3.8 B**	**4.5 B**	**5.6 B**	**4.3 B**
BERYLLIUM	UG/L	0.42	--	--	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U
CADMIUM	UG/L	0.7	40	8.8	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
CHROMIUM	UG/L	0.93	1100	50	0.93 U	**1.6 B**	**0.99 B**	**1.5 B**	**1.2 B**	**0.95 B**
COBALT	UG/L	0.53	--	--	0.53 U	530 U	530 U	530 U	530 U	530 U
COPPER	UG/L	1.2	48	3.1	***3.7 B***	**1.7 B**	1.2 U	**1.4 B**	**1.5 B**	1.2 U
IRON	UG/L	18	--	--	**228**	**220**	18 U	**120**	**79 B**	**97 B**
LEAD	UG/L	1.6	210	8.1	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U
MANGANESE	UG/L	0.11	--	--	**78.1**	**640**	**620**	**710**	**460**	**610**
MERCURY	UG/L	0.048	1.8	0.94	0.048 U	**0.08 B**	0.048 U	0.048 U	**0.084 B**	**0.064 B**
NICKEL	UG/L	1.2	74	8.2	**1.7 B**	1.2 U	1.2 U	**2.6 B**	**1.7 B**	1.2 U
SELENIUM	UG/L	2.6	290	71	**5.1**	**3.2 B J**	**2.7 B J**	2.6 U	2.6 U	2.6 U
SILVER	UG/L	0.3	1.9	--	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
THALLIUM	UG/L	4.6	--	--	4.6 U	4.6 U	4.6 U	4.6 U	4.6 U	4.6 U
TIN	UG/L	2.9	--	--	**4.7 B**	**3.4 B**	**4.2 B**	**5.4 B**	2.9 U	**3 B**
ZINC	UG/L	1.7	90	81	**5.3 B**	1.7 U	**12 B**	1.7 U	**17 B**	**6.4 B**

**Source:* USEPA 2004. *Recommended Water Quality Criteria*

NOTE: Shaded and bold values represent detected concentrations.
U = compound was analyzed but not detected
J (inorganic) = compound was detected in method blank
B (inorganic) = compound was detected, but below reporting limit (value is estimated).
Italicized cells indicate exceedences of USEPA chronic criteria

TABLE A-7. PCB CONGENER CONCENTRATIONS (NG/L) IN SITE WATER AND STANDARD ELUTRIATES
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HABOR, MARYLAND

ANALYTE	UNITS	AVGDL	USEPA CHRONIC CRITERIA*	EB/ELU SW (Elutriate Prep Water)	EB/ELU 01A	EB/ELU 05A	EB/ELU 06	EB/ELU 08	EB/ELU 09
PCB 8 (BZ)	NG/L	0.38	--	0.43 U	0.38 U	0.38 U	**0.58 J**	**0.5 J PG**	0.38 U
PCB 18 (BZ)	NG/L	0.38	--	0.47 U	**0.89 J**	0.38 U	**1.9**	**2.3**	0.38 U
PCB 28 (BZ)	NG/L	0.44	--	0.42 U	**0.83 J PG**	0.44 U	**1.7 PG**	**1.5 PG**	**0.45 J PG**
PCB 44 (BZ)	NG/L	0.46	--	0.42 U	**0.68 J**	0.46 U	**1**	**1.1**	0.46 U
PCB 49 (BZ)	NG/L	0.28	--	0.44 U	**0.84 J**	0.28 U	**0.62 J PG**	**0.9 J PG**	**0.3 J PG**
PCB 52 (BZ)	NG/L	0.43	--	0.42 U	**1**	0.43 U	**1.4**	**1.3**	0.43 U
PCB 66 (BZ)	NG/L	0.48	--	0.49 U	**0.72 J PG**	0.48 U	**0.97 J**	**0.87 J PG**	0.48 U
PCB 77 (BZ)	NG/L	0.48	--	0.43 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U
PCB 87 (BZ)	NG/L	0.43	--	0.39 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
PCB 101 (BZ)	NG/L	0.48	--	0.4 U	**1.3**	0.48 U	**0.5 J PG**	**1.2**	0.48 U
PCB 105 (BZ)	NG/L	0.47	--	0.37 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U
PCB 118 (BZ)	NG/L	0.49	--	0.52 U	**1.1 PG**	0.49 U	**0.61 J PG**	**0.76 J PG**	**0.58 J PG**
PCB 126 (BZ)	NG/L	0.32	--	0.38 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
PCB 128 (BZ)	NG/L	0.5	--	0.35 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
PCB 138 (BZ)	NG/L	0.49	--	0.33 U	**1.3**	0.49 U	0.49 U	**0.79 J**	0.49 U
PCB 153 (BZ)	NG/L	0.46	--	0.38 U	**1.9**	0.46 U	**0.78 J**	**1.3**	**0.66 J**
PCB 156 (BZ)	NG/L	0.44	--	0.36 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U
PCB 169 (BZ)	NG/L	0.24	--	0.42 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
PCB 170 (BZ)	NG/L	0.23	--	0.36 U	**0.7 J**	0.23 U	0.23 U	**0.38 J**	0.23 U
PCB 180 (BZ)	NG/L	0.29	--	0.35 U	**1.3**	0.29 U	**0.38 J**	**0.81 J**	**0.33 J**
PCB 183 (BZ)	NG/L	0.5	--	0.36 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
PCB 184 (BZ)	NG/L	0.23	--	0.41 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
PCB 187 (BZ)	NG/L	0.48	--	0.38 U	**0.93 J**	0.48 U	0.48 U	**0.58 J**	0.48 U
PCB 195 (BZ)	NG/L	0.29	--	0.38 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
PCB 206 (BZ)	NG/L	0.3	--	0.37 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
PCB 209 (BZ)	NG/L	0.26	--	0.43 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
TOTAL PCBs (ND=0)	NG/L	--	30	**0**	**25.3**	**0**	**19.64**	**26.78**	**4.04**
TOTAL PCBs (ND=1/2DL	NG/L	--	30	**7.32**	**27.69**	**7.5**	**22.85**	**28.79**	**9.86**

**Source:* USEPA 2004. *Recommended Water Quality Criteria*
There is no USEPA saltwater acute criteria for aquatic life for the tested PCBs or total PCB concentrations

NOTE: Shaded and bold values represent detected concentrations.
U = compound was analyzed but not detected
J = compound was detected, but below the reporting limit (value is estimated)
PG = the percent difference between the original and confirmation analysis is greater than 40%

TABLE A-8. PCB AROCLOR CONCENTRATIONS (UG/L) IN SITE WATER AND STANDARD ELUTRIATES
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HABOR, MARYLAND

ANALYTE	UNITS	AVGDL	USEPA CHRONIC CRITERIA*	EB/ELU SW (Elutriate Prep Water)	EB/ELU 01A	EB/ELU 05A	EB/ELU 06	EB/ELU 08	EB/ELU 09
AROCLOR 1016	UG/L	0.099	--	0.47 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U
AROCLOR 1221	UG/L	0.091	--	0.43 U	0.091 U	0.091 U	0.091 U	0.091 U	0.091 U
AROCLOR 1232	UG/L	0.11	--	0.51 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
AROCLOR 1242	UG/L	0.051	--	0.24 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U
AROCLOR 1248	UG/L	0.068	--	0.32 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U
AROCLOR 1254	UG/L	0.071	--	0.34 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U
AROCLOR 1260	UG/L	0.12	--	0.55 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U

**Source:* USEPA 2004. *Recommended Water Quality Criteria*
There is no USEPA saltwater acute criteria for aquatic life for the tested PCBs or total PCB concentrations

NOTE: Shaded and bold values represent detected concentrations.
U = compound was analyzed but not detected

TABLE A-9. PAH CONCENTRATIONS (UG/L) IN SITE WATER AND STANDARD ELUTRIATES
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HABOR, MARYLAND

ANALYTE	UNITS	AVGDL	EB/ELU SW (Elutriate Prep Water)	EB/ELU 01A	EB/ELU 05A	EB/ELU 06	EB/ELU 08	EB/ELU 09
1-METHYLNAPHTHALENE	UG/L	0.0832	0.03 U	0.082 U	0.083 U	0.084 U	0.083 U	0.084 U
2-METHYLNAPHTHALENE	UG/L	0.0494	0.023 U	0.049 U	0.049 U	0.05 U	0.049 U	0.05 U
ACENAPHTHENE	UG/L	0.0378	0.036 U	**0.041 J**	0.038 U	0.038 U	0.038 U	0.038 U
ACENAPHTHYLENE	UG/L	0.0348	0.033 U	0.034 U	0.035 U	0.035 U	0.035 U	0.035 U
ANTHRACENE	UG/L	0.0244	0.033 U	0.024 U	0.024 U	0.025 U	0.024 U	0.025 U
BENZO(A)ANTHRACENE	UG/L	0.0214	0.02 U	0.021 U	0.021 U	0.022 U	**0.022 J**	0.022 U
BENZO(A)PYRENE	UG/L	0.0244	0.071 U	0.024 U	0.024 U	0.025 U	0.024 U	0.025 U
BENZO(B)FLUORANTHENE	UG/L	0.0244	0.039 U	0.024 U	0.024 U	0.025 U	**0.035 J**	0.025 U
BENZO(GHI)PERYLENE	UG/L	0.0298	0.11 U	**0.056 J**	0.03 U	0.03 U	**0.04 J**	0.03 U
BENZO(K)FLUORANTHENE	UG/L	0.02	0.057 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
CHRYSENE	UG/L	0.02	0.032 U	0.02 U	0.02 U	0.02 U	**0.024 J**	0.02 U
DIBENZO(A,H)ANTHRACENE	UG/L	0.0304	0.14 U	0.03 U	0.03 U	0.031 U	0.03 U	0.031 U
FLUORANTHENE	UG/L	0.031	**0.046 J**	**0.059 J**	**0.038 J**	0.031 U	**0.11 J**	**0.043 J**
FLUORENE	UG/L	0.036	0.034 U	**0.061 J**	**0.049 J**	**0.036 J**	**0.049 J**	0.036 U
INDENO(1,2,3-CD)PYRENE	UG/L	0.0244	0.098 U	0.024 U	0.024 U	0.025 U	0.024 U	0.025 U
NAPHTHALENE	UG/L	0.0378	0.036 U	**0.2**	**0.098 J**	0.038 U	**0.039 J**	**0.038 J**
PHENANTHRENE	UG/L	0.031	**0.092 J**	**0.25**	**0.12 J**	**0.097 J**	**0.14 J**	**0.1 J**
PYRENE	UG/L	0.0238	**0.027 J**	**0.1 J**	**0.027 J**	**0.031 J**	**0.16 J**	**0.03 J**
TOTAL PAHs (ND=0)	UG/L	--	**0.165**	**0.767**	**0.332**	**0.164**	**0.619**	**0.211**
TOTAL PAHs (ND=1/2DL)	UG/L	--	**0.561**	**0.943**	**0.543**	**0.4135**	**0.7825**	**0.444**

There are no USEPA saltwater acute or chronic criteria for aquatic life for the tested PAHs or total PAH concentrations

NOTE: Shaded and bold values represent detected concentrations.
J = compound was detected, but below the reporting limit (value is estimated)
U = compound was analyzed but not detected

TABLE A-10. CHLORINATED PESTICIDE CONCENTRATIONS (UG/L) IN SITE WATER AND STANDARD ELUTRIATES
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HABOR, MARYLAND

ANALYTE	UNITS	AVGDL	USEPA ACUTE CRITERIA*	USEPA CHRONIC CRITERIA*	EB/ELU SW (Elutriate Prep Water)	EB/ELU 01A	EB/ELU 05A	EB/ELU 06	EB/ELU 08	EB/ELU 09
4,4'-DDD	UG/L	0.016	--	--	0.012 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U
4,4'-DDE	UG/L	0.016	--	--	0.018 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U
4,4'-DDT	UG/L	0.015	0.13	0.001	0.015 U	0.015 U b	0.015 U b	0.015 U b	0.015 U b	0.015 U b
ALDRIN	UG/L	0.014	1.3	--	0.016 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
ALPHA-BHC	UG/L	0.014	--	--	0.018 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
BETA-BHC	UG/L	0.016	--	--	0.015 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U
CHLORDANE (TECHNICAL)	UG/L	0.17	--	--	0.015 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
CHLOROBENSIDE	UG/L	0.032	--	--	0.024 U	0.032 U	0.032 U	0.032 U	0.032 U	0.032 U
DCPA	UG/L	0.032	--	--	0.03 U	0.032 U	0.032 U	0.032 U	0.032 U	0.032 U
DELTA-BHC	UG/L	0.016	--	--	0.03 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U
DIELDRIN	UG/L	0.016	0.71	0.0019	0.017 U	0.016 U b	0.016 U b	0.016 U b	0.016 U b	0.016 U b
ENDOSULFAN I	UG/L	0.015	0.034	0.0087	0.021 U	0.015 U b	0.015 U b	0.015 U b	0.015 U b	0.015 U b
ENDOSULFAN II	UG/L	0.028	0.034	0.0087	0.015 U	0.028 U b	0.028 U b	0.028 U b	0.028 U b	0.028 U b
ENDOSULFAN SULFATE	UG/L	0.017	--	--	0.021 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U
ENDRIN	UG/L	0.015	0.037	0.0023	0.024 U	0.015 U b	0.015 U b	0.015 U b	0.015 U b	0.015 U b
ENDRIN ALDEHYDE	UG/L	0.016	--	--	0.017 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U
GAMMA-BHC (LINDANE)	UG/L	0.015	0.16	--	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
HEPTACHLOR	UG/L	0.014	0.053	0.0036	0.014 U	0.014 U b	0.014 U b	0.014 U b	0.014 U b	0.014 U b
HEPTACHLOR EPOXIDE	UG/L	0.015	0.053	0.0036	0.014 U	0.015 U b	0.015 U b	0.015 U b	0.015 U b	0.015 U b
HEXACHLOROBENZENE	UG/L	0.013	--	--	0.022 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U
METHOXYCHLOR	UG/L	0.031	--	0.03	0.029 U	0.031 U b	0.031 U b	0.031 U b	0.031 U b	0.031 U b
MIREX	UG/L	0.017	--	0.001	0.016 U	0.017 U b	0.017 U b	0.017 U b	0.017 U b	0.017 U b
TOXAPHENE	UG/L	0.072	0.21	0.0002	0.08 U	0.072 U b	0.072 U b	0.072 U b	0.072 U b	0.072 U b

**Source:* USEPA 2004. *Recommended Water Quality Criteria*

NOTE: Shaded and bold values represent detected concentrations.
U = compound was analyzed but not detected

TABLE A-11. ORGANOPHOSPHORUS PESTICIDE CONCENTRATIONS (UG/L) IN SITE WATER AND STANDARD ELUTRIATES
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HABOR, MARYLAND

ANALYTE	UNITS	AVGDL	USEPA ACUTE CRITERIA	USEPA CHRONIC CRITERIA*	EB/ELU SW (Elutriate Prep Water)	EB/ELU 01A	EB/ELU 05A	EB/ELU 06	EB/ELU 08	EB/ELU 09
AZINPHOS METHYL	UG/L	0.27	--	0.1	0.12 U	0.27 U b	0.27 U b	0.27 U b	0.27 U b	0.27 U b
DEMETON	UG/L	0.74	--	0.1	0.37 U	0.74 U b	0.74 U b	0.74 U b	0.74 U b	0.74 U b
MALATHION	UG/L	0.24	--	0.1	0.068 U	0.24 U b	0.24 U b	0.24 U b	0.24 U b	0.24 U b
METHYL PARATHION	UG/L	0.27	--	--	0.04 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
PARATHION	UG/L	0.24	--	--	0.078 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U

**Source:* USEPA 2004. *Recommended Water Quality Criteria*

NOTE: Shaded and bold values represent detected concentrations.
U = compound was analyzed but not detected

TABLE A-12. DIOXIN AND FURAN CONCENTRATIONS (PG/L) IN SITE WATER AND STANDARD ELUTRIATES
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HABOR, MARYLAND

ANALYTE	UNITS	AVGDL	EB/ELU SW (Elutriate Prep Water)	EB/ELU 01A	EB/ELU 05A	EB/ELU 06	EB/ELU 08	EB/ELU 09
2,3,7,8-TCDD	PG/L	9.88	9.8 U	9.9 U	9.9 U	9.8 U	9.9 U	9.9 U
1,2,3,7,8-PECDD	PG/L	49.8	49 U	50 U	50 U	49 U	50 U	50 U
1,2,3,4,7,8-HXCDD	PG/L	49.8	49 U	50 U	50 U	49 U	50 U	50 U
1,2,3,6,7,8-HXCDD	PG/L	49.8	49 U	50 U	50 U	49 U	**3.6 Q J**	50 U
1,2,3,7,8,9-HXCDD	PG/L	49.8	49 U	50 U	50 U	49 U	50 U	**8.6 Q J**
1,2,3,4,6,7,8-HPCDD	PG/L	49.8	**9.7 Q J**	**17 J**	**36 J**	**66**	**110**	**27 Q J**
OCDD	PG/L	98.8	**170 B**	**350 B**	**870 B**	**1600 B**	**1300 B**	**650 B**
2,3,7,8-TCDF	PG/L	9.88	9.8 U	9.9 U	9.9 U	9.8 U	9.9 U	9.9 U
1,2,3,7,8-PECDF	PG/L	49.8	49 U	50 U	50 U	49 U	50 U	50 U
2,3,4,7,8-PECDF	PG/L	49.8	49 U	50 U	50 U	49 U	50 U	50 U
1,2,3,4,7,8-HXCDF	PG/L	49.8	49 U	50 U	50 U	**3.8 J**	**12 Q J**	**1.7 Q J**
1,2,3,6,7,8-HXCDF	PG/L	49.8	49 U	50 U	50 U	**1.3 Q J**	50 U	50 U
2,3,4,6,7,8-HXCDF	PG/L	49.8	49 U	50 U	50 U	49 U	50 U	50 U
1,2,3,7,8,9-HXCDF	PG/L	49.8	49 U	50 U	50 U	49 U	50 U	50 U
1,2,3,4,6,7,8-HPCDF	PG/L	49.8	**4 Q J**	**5.6 J**	**9.5 J**	**18 J**	**52**	**6.3 Q J**
1,2,3,4,7,8,9-HPCDF	PG/L	49.8	49 U	50 U	50 U	49 U	50 U	50 U
OCDF	PG/L	98.8	**10 J**	**15 J**	**25 J**	**41 J**	**130**	**18 Q J**
WHO TEQ (ND=0)	PG/L		**0.138**	**0.2275**	**0.4575**	**1.3541**	**3.193**	**1.3648**
WHO TEQ (ND=1/2DL)	PG/L		**60.898**	**62.1725**	**62.4025**	**57.2141**	**60.138**	**58.3098**

There are no USEPA saltwater acute or chronic criteria for aquatic life for the tested dioxin and furan congenrs

NOTE: Shaded and bold values represent detected concentrations.
U = compound was analyzed but not detected
J = compound was detected, but below the reporting limit (value is estimated)
B = compound was detected in method blank
Q = Estimated maximum possible concentration.

TABLE A-13. BUTYLTIN CONCENTRATIONS (UG/L) IN SITE WATER AND STANDARD ELUTRIATES
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HABOR, MARYLAND

ANALYTE	UNITS	AVGDL	USEPA ACUTE CRITERIA*	USEPA CHRONIC CRITERIA*	EB/ELU SW (Elutriate Prep Water)	EB/ELU 01A	EB/ELU 05A	EB/ELU 06	EB/ELU 08	EB/ELU 09
DIBUTYLTIN	UG/L	0.01	--	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
MONOBUTYLTIN	UG/L	0.05	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
TETRABUTYLTIN	UG/L	0.0086	--	--	0.0086 U	0.0086 U	0.0086 U	0.0086 U	0.0086 U	0.0086 U
TRIBUTYLTIN	UG/L	0.012	0.37	0.01	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U

**Source:* USEPA 2004. *Recommended Water Quality Criteria*

NOTE: Shaded and bold values represent detected concentrations.
U = compound was analyzed but not detected

TABLE A-14. SEMIVOLATILE ORGANIC COMPOUND (SVOC) CONCENTRATIONS (UG/L) IN SITE WATER AND STANDARD ELUTRIATES
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HABOR, MARYLAND

ANALYTE	UNITS	AVGDL	USEPA ACUTE CRITERIA*	USEPA CHRONIC CRITERIA*	EB/ELU SW (Elutriate Prep Water)	EB/ELU 01A	EB/ELU 05A	EB/ELU 06	EB/ELU 08	EB/ELU 09
1,2,4-TRICHLOROBENZENE	UG/L	1.38	--	--	5.8 U	1.3 U	1.4 U	1.4 U	1.4 U	1.4 U
1,2-DICHLOROBENZENE	UG/L	1.34	--	--	7 U	1.3 U	1.3 U	1.4 U	1.3 U	1.4 U
1,2-DIPHENYLHYDRAZINE	UG/L	1.3	--	--	3.2 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
1,3-DICHLOROBENZENE	UG/L	1.28	--	--	4.9 U	1.2 U	1.3 U	1.3 U	1.3 U	1.3 U
1,4-DICHLOROBENZENE	UG/L	1.3	--	--	4.8 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
2,2'-OXYBIS(1-CHLOROPROPANE)	UG/L	1.7	--	--	5.8 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
2,4,6-TRICHLOROPHENOL	UG/L	1.5	--	--	2.9 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
2,4-DICHLOROPHENOL	UG/L	1.3	--	--	3.2 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
2,4-DIMETHYLPHENOL	UG/L	1.8	--	--	3.3 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
2,4-DINITROPHENOL	UG/L	14.8	--	--	21 U	14 U	15 U	15 U	15 U	15 U
2,4-DINITROTOLUENE	UG/L	1.3	--	--	4.9 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
2,6-DINITROTOLUENE	UG/L	1.4	--	--	1 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
2-CHLORONAPHTHALENE	UG/L	1.4	--	--	5.6 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
2-CHLOROPHENOL	UG/L	1.4	--	--	2.7 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
2-METHYLPHENOL	UG/L	1.5	--	--	2.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
2-NITROPHENOL	UG/L	2.98	--	--	3.2 U	2.9 U	3 U	3 U	3 U	3 U
3,3'-DICHLOROBENZIDINE	UG/L	25	--	--	6.5 U	25 U	25 U	25 U	25 U	25 U
4,6-DINITRO-2-METHYLPHENOL	UG/L	9.54	--	--	19 U	9.5 U	9.5 U	9.6 U	9.5 U	9.6 U
4-BROMOPHENYL PHENYL ETHER	UG/L	1.2	--	--	0.94 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
4-CHLORO-3-METHYLPHENOL	UG/L	1.3	--	--	1 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
4-CHLOROPHENYL PHENYL ETHER	UG/L	1.6	--	--	1.3 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U
4-METHYLPHENOL	UG/L	3.48	--	--	1.4 U	3.4 U	3.5 U	3.5 U	3.5 U	3.5 U
4-NITROPHENOL	UG/L	1.78	--	--	15 U	1.7 U	1.8 U	1.8 U	1.8 U	1.8 U
BENZOIC ACID	UG/L	38.8	--	--	4.9 U	38 U	39 U	39 U	39 U	39 U
BENZYL ALCOHOL	UG/L	1.9	--	--	7.5 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
BIS(2-CHLOROETHOXY)METHANE	UG/L	3.4	--	--	3.7 U	3.4 U	3.4 U	3.4 U	3.4 U	3.4 U
BIS(2-CHLOROETHYL) ETHER	UG/L	1.4	--	--	2.3 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
BIS(2-CHLOROISOPROPYL) ETHER	UG/L	1.7	--	--	5.8 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
BIS(2-ETHYLHEXYL) PHTHALATE	UG/L	0.902	--	--	1.5 U	0.89 U	0.9 U	**1.5 J**	**1.2 J**	**1.3 J**
BUTYL BENZYL PHTHALATE	UG/L	0.998	--	--	2.7 U	0.99 U	1 U	1 U	**1.1 J**	1 U
DIBENZOFURAN	UG/L	1.5	--	--	5.7 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
DIETHYL PHTHALATE	UG/L	1.1	--	--	1.4 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
DIMETHYL PHTHALATE	UG/L	1.24	--	--	1.2 U	1.2 U	1.2 U	1.3 U	1.2 U	1.3 U
DI-N-BUTYL PHTHALATE	UG/L	1.1	--	--	1.2 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
DI-N-OCTYL PHTHALATE	UG/L	0.942	--	--	1.5 U	0.93 U	0.94 U	0.95 U	0.94 U	0.95 U
HEXACHLOROBUTADIENE	UG/L	1.48	--	--	7.7 U	1.4 U	1.5 U	1.5 U	1.5 U	1.5 U
HEXACHLOROCYCLOPENTADIENE	UG/L	6.22	--	--	0.99 U	6.1 U	6.2 U	6.3 U	6.2 U	6.3 U
HEXACHLOROETHANE	UG/L	1.38	--	--	6.7 U	1.3 U	1.4 U	1.4 U	1.4 U	1.4 U
ISOPHORONE	UG/L	1.4	--	--	5.9 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
NITROBENZENE	UG/L	1.44	--	--	2.2 U	1.4 U	1.4 U	1.5 U	1.4 U	1.5 U
N-NITROSODIMETHYLAMINE	UG/L	1.7	--	--	1 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
N-NITROSODI-N-PROPYLAMINE	UG/L	1.5	--	--	3.7 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
N-NITROSODIPHENYLAMINE	UG/L	4.14	--	--	3 U	4.1 U	4.1 U	4.2 U	4.1 U	4.2 U
PENTACHLOROPHENOL	UG/L	0.812	13	7.9	20 U	0.8 U	0.81 U	0.82 U	0.81 U	0.82 U
PHENOL	UG/L	1.98	--	--	2.6 U	1.9 U	2 U	2 U	2 U	2 U

**Source:* USEPA 2004. *Recommended Water Quality Criteria*

NOTE: Shaded and bold values represent detected concentrations.
U = compound was analyzed but not detected
J = compound was detected, but below the reporting limit (value is estimated)

TABLE A-15. GENERAL CHEMISTRY CONCENTRATIONS IN STANDARD ELUTRIATES AND SITE WATER FOR PROPOSED MASONVILLE BORROW MATERIAL (JANUARY 2006)
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

ANALYTE	UNITS	EPAACUTESV	EPACHRONICSV	RL	EB-1-ELUT	EB-2-ELUT	EB-3-ELUT	EB-4-ELUT	EB-5-ELUT	EB-6-ELUT	EB-7-ELUT	EB-SITE CONTROL WATER
AMMONIA NITROGEN	MG/L	43	6.4	0.1	**2.2**	**5.2**	**3.9**	**5**	**1.7**	**2.9**	**1.7**	**0.094 B J**
BIOCHEMICAL OXYGEN DEMAND	MG/L	--	--	0.79	0.79 U	0.79 U	0.79 U	0.79 U	**2.1**	0.79 U	0.79 U	**5.1**
CHEMICAL OXYGEN DEMAND	MG/L	--	--	14	**121**	**90.7**	**275**	**172**	**139**	**203**	**106**	
DISSOLVED CYANIDE	UG/L	--	--	4.3	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	**0.77**
NITRATE + NITRITE AS N	MG/L	--	--	0.1	**0.75**	**0.79**	**0.78**	**0.84**	**0.67**	**0.79**	**0.76**	3 U
NITROGEN, TOTAL KJELDAHL NITROGEN AS N	MG/L	--	--	3	**3.8**	**6.4**	**5.8**	**8.3**	**3.2**	**4.5**	**2.6 B**	**8.3**
PH	NO UNITS	--	--	0.1	**7.5**	**7.8**	**7.3**	**7.6**	**6.6**	**7.5**	**7.6**	0.1 U
PHOSPHORUS	MG/L	--	--	0.157	0.1 U	**3.9**	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	3 U b
SULFIDE	MG/L	--	0.002	3	3 U b	3 U b	3 U b	3 U b	3 U b	3 U b	3 U b	10 U ab
TOTAL ORGANIC CARBON	MG/L	--	--	0.31	0.31 U	0.31 U	0.31 U	**0.43 B**	**0.39 B**	0.31 U	0.31 U	**2.1 J**

NOTE: Shaded and bold values represent detected concentrations.
RL = average reporting limit
EPAACUTESV = EPA acute screening value
EPACHRONICSV = EPA chronic screening value
B (inorganic) **=** compound was detected, but below reporting limit (value is estimated).
U = compound was analyzed but not detected
J (inorganic) **=** compound was detected in method blank

TABLE A-16. METAL CONCENTRATIONS (UG/L) IN STANDARD ELUTRIATES AND SITE WATER FOR PROPOSED MASONVILLE BORROW MATERIAL (JANUARY 2006)
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

ANALYTE	UNITS	EPAACUTESV	EPACHRONICSV	MDL	EB-1-ELUT	EB-2-ELUT	EB-3-ELUT	EB-4-ELUT	EB-5-ELUT	EB-6-ELUT	EB-7-ELUT	EB-SITE CONTROL WATER
ANTIMONY	UG/L	--	--	3.2	3.2 U	3.2 U	3.2 U	3.2 U	3.2 U	3.2 U	3.2 U	3.2 U
ARSENIC	UG/L	69	36	3.3	**3.3 B**	**4.8 B**	**3.9 B**	3.3 U	3.3 U	**6.6 B**	3.3 U	3.3 U
BERYLLIUM	UG/L	--	--	0.42	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U
CADMIUM	UG/L	40	8.8	0.7	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
CHROMIUM, HEXAVALENT	UG/L	1100	50	1.8	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
CHROMIUM, TOTAL	UG/L	1100	50	0.93	**1.1 B**	**1.4 B**	0.93 U	**1.6 B**	**2.2 B**	**2 B**	**3.2 B**	**1.6 B**
COPPER	UG/L	4.8	3.1	1.2	**1.6 B**	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	**1.6 B**	**2.9 B**
LEAD	UG/L	210	8.1	1.6	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U
MERCURY	UG/L	1.8	0.94	0.048	0.048 U	**0.063 B**	**0.062 B**	0.048 U	0.048 U	0.048 U	**0.071 B**	0.048 U
NICKEL	UG/L	74	8.2	1.2	**5.5 B**	**1.7 B**	**7 B**	**2.1 B**	**7.7 B**	**3.2 B**	**2.7 B**	**2.9 B**
SELENIUM	UG/L	290	71	2.6	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U
SILVER	UG/L	1.9	--	0.3	0.3 U	**0.34 B**	0.3 U	0.3 U	0.3 U	**0.41 B**	0.3 U	0.3 U
THALLIUM	UG/L	--	--	4.6	**5.6 B**	4.6 U	4.6 U	4.6 U	4.6 U	4.6 U	4.6 U	4.6 U
ZINC	UG/L	90	81	1.7	**6.6 B J**	**5.2 B J**	**5.3 B J**	**4.8 B J**	**6.9 B J**	**4.9 B J**	**6.1 B J**	**3.2 B**

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
EPAACUTESV = EPA acute screening value
EPACHRONICSV = EPA chronic screening value
B (inorganic) = compound was detected, but below reporting limit (value is estimated).
J (inorganic) = compound was detected in method blank
U = compound was analyzed but not detected

TABLE A-17. PCB CONGENER CONCENTRATIONS (NG/L) IN STANDARD ELUTRIATES AND SITE WATER FOR PROPOSED MASONVILLE BORROW MATERIAL (JANUARY 2006)
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

ANALYTE	UNITS	EPAACUTESV	EPACHRONICSV	MDL	EB-1-ELUT	EB-2-ELUT	EB-3-ELUT	EB-4-ELUT	EB-5-ELUT	EB-6-ELUT	EB-7-ELUT	EB-SITE CONTROL WATER
PCB 8 (BZ)	NG/L	--	--	0.364	1.1 PG	0.88 J PG	1 PG	0.6 J PG	0.37 U	0.37 U	0.52 J	0.44 U
PCB 18 (BZ)	NG/L	--	--	0.364	0.36 U	0.41 J PG	0.36 U	0.36 U	0.37 U	0.37 U	0.37 U	0.48 U
PCB 28 (BZ)	NG/L	--	--	0.421	0.42 U	0.42 U	0.42 U	0.42 U	0.43 U	0.42 U	0.42 U	210 PG
PCB 44 (BZ)	NG/L	--	--	0.434	0.43 U	0.43 U	0.43 U	0.43 U	0.44 U	0.44 U	0.44 U	0.44 U
PCB 49 (BZ)	NG/L	--	--	0.261	0.26 U	0.34 J PG	0.32 J PG	0.26 U	0.27 U	0.26 U	0.26 U	260
PCB 52 (BZ)	NG/L	--	--	0.411	0.41 U	0.41 U	0.41 U	0.41 U	0.42 U	0.41 U	0.41 U	0.43 U
PCB 66 (BZ)	NG/L	--	--	0.464	0.46 U	0.46 U	0.46 U	0.46 U	0.47 U	0.47 U	0.47 U	170 PG
PCB 77 (BZ)	NG/L	--	--	0.454	0.45 U	0.45 U	0.45 U	0.45 U	0.46 U	0.46 U	0.46 U	0.44 U
PCB 87 (BZ)	NG/L	--	--	0.411	0.41 U	0.41 U	0.41 U	0.41 U	0.42 U	0.41 U	0.41 U	0.41 U
PCB 101 (BZ)	NG/L	--	--	0.454	0.45 U	0.67 J PG	0.45 U	0.45 U	0.46 U	0.46 U	0.46 U	0.41 U
PCB 105 (BZ)	NG/L	--	--	0.444	0.44 U	0.44 U	0.44 U	0.44 U	0.45 U	0.45 U	0.45 U	0.38 U
PCB 118 (BZ)	NG/L	--	--	0.464	0.46 U	0.66 J	0.46 U	0.46 U	0.47 U	0.47 U	0.47 U	0.53 U
PCB 126 (BZ)	NG/L	--	--	0.301	0.3 U	0.52 J PG	0.3 U	0.3 U	0.31 U	0.3 U	0.3 U	0.39 U
PCB 128 (BZ)	NG/L	--	--	0.474	0.47 U	1 PG	0.47 U	0.47 U	0.48 U	0.48 U	0.48 U	0.36 U
PCB 138 (BZ)	NG/L	--	--	0.464	0.46 U	0.46 U	0.46 U	0.46 U	0.47 U	0.47 U	0.47 U	0.34 U
PCB 153 (BZ)	NG/L	--	--	0.434	0.43 U	1.5	0.43 U	0.43 U	0.44 U	0.44 U	0.44 U	0.39 U
PCB 156 (BZ)	NG/L	--	--	0.414	0.41 U	0.41 U	0.41 U	0.41 U	0.42 U	0.42 U	0.42 U	0.37 U
PCB 169 (BZ)	NG/L	--	--	0.230	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.43 U
PCB 170 (BZ)	NG/L	--	--	0.220	0.22 U	0.78 J	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.37 U
PCB 180 (BZ)	NG/L	--	--	0.280	0.28 U	1 PG	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.36 U
PCB 183 (BZ)	NG/L	--	--	0.474	0.47 U	0.47 U	0.47 U	0.47 U	0.48 U	0.48 U	0.48 U	0.37 U
PCB 184 (BZ)	NG/L	--	--	0.220	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.42 U
PCB 187 (BZ)	NG/L	--	--	0.461	0.46 U	0.88 J	0.46 U	0.46 U	0.47 U	0.46 U	0.46 U	0.39 U
PCB 195 (BZ)	NG/L	--	--	0.271	0.27 U	0.27 U	0.27 U	0.27 U	0.28 U	0.27 U	0.27 U	0.39 U
PCB 206 (BZ)	NG/L	--	--	0.290	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.38 U
PCB 209 (BZ)	NG/L	--	--	0.250	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.44 U
TOTAL PCBs (ND=0)	NG/L	--	30	--	2.2	16.6	2	1.2	0	0	1.04	760 b
TOTAL PCBs (ND=1/2)	NG/L	--	30	--	8.93	19.9	8.73	7.93	7.24	7.2	7.87	766.58 b

*PCB congeners used for Total PCB summation, as per Table 9-3 of the ITM (USEPA/USACE 1998)

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
EPAACUTESV = EPA acute screening value
EPACHRONICSV = EPA chronic screening value
J = compound was detected, but below the reporting limit (value is estimated)
PG = the percent difference between the original and confirmation analysis is greater than 40%
U = compound was analyzed but not detected

TABLE A-18. PCB AROCLOR CONCENTRATIONS (UG/L) IN STANDARD ELUTRIATES AND SITE WATER FOR PROPOSED MASONVILLE BORROW MATERIAL (JANUARY 2006)

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

ANALYTE	UNITS	EPAACUTESV	EPACHRONICSV	MDL	EB-1-ELUT	EB-2-ELUT	EB-3-ELUT	EB-4-ELUT	EB-5-ELUT	EB-6-ELUT	EB-7-ELUT	EB-SITE CONTROL WATER
AROCLOR 1016	UG/L	--	--	0.473	0.47 U	0.47 U	0.47 U	0.47 U	0.49 U	0.47 U	0.47 U	0.49 U
AROCLOR 1221	UG/L	--	--	0.433	0.43 U	0.43 U	0.43 U	0.43 U	0.45 U	0.43 U	0.43 U	0.45 U
AROCLOR 1232	UG/L	--	--	0.513	0.51 U	0.51 U	0.51 U	0.51 U	0.53 U	0.51 U	0.51 U	0.53 U
AROCLOR 1242	UG/L	--	--	0.241	0.24 U	0.24 U	0.24 U	0.24 U	0.25 U	0.24 U	0.24 U	0.25 U
AROCLOR 1248	UG/L	--	--	0.326	0.32 U	0.32 U	0.32 U	0.33 U	0.34 U	0.32 U	0.33 U	0.34 U
AROCLOR 1254	UG/L	--	--	0.341	0.34 U	0.34 U	0.34 U	0.34 U	0.35 U	0.34 U	0.34 U	0.35 U
AROCLOR 1260	UG/L	--	--	0.557	0.55 U	0.55 U	0.55 U	0.56 U	0.58 U	0.55 U	0.56 U	0.58 U

There are no EPAACUTESV and EPACHRONICSV values for standard elutriate PCB Aroclors
NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
EPAACUTESV = EPA acute screening value
EPACHRONICSV = EPA chronic screening value
U = compound was analyzed but not detected

TABLE A-19. PAH CONCENTRATIONS (UG/L) IN STANDARD ELUTRIATES AND SITE WATER FOR PROPOSED MASONVILLE BORROW MATERIAL (JANUARY 2006)
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

ANALYTE	UNITS	EPAACUTESV	EPACHRONICSV	MDL	EB-1-ELUT	EB-2-ELUT	EB-3-ELUT	EB-4-ELUT	EB-5-ELUT	EB-6-ELUT	EB-7-ELUT	EB-SITE CONTROL WATER
1-METHYLNAPHTHALENE	UG/L	--	--	0.082	0.079 U	0.08 U	0.081 U	0.084 U	0.084 U	0.081 U	0.084 U	0.032 U
2-METHYLNAPHTHALENE	UG/L	--	--	0.049	0.047 U	0.047 U	0.048 U	0.05 U	0.05 U	0.048 U	0.05 U	0.024 U
ACENAPHTHENE	UG/L	--	--	0.037	0.065 J	0.24	0.63	0.19 J	0.052 J	0.23	0.06 J	0.038 U
ACENAPHTHYLENE	UG/L	--	--	0.034	0.033 U	0.033 U	0.034 U	0.035 U	0.035 U	0.034 U	0.035 U	0.035 U
ANTHRACENE	UG/L	--	--	0.024	0.023 U	0.045 J	0.18 J	0.043 J	0.025 U	0.085 J	0.025 U	0.036 U
BENZO(A)ANTHRACENE	UG/L	--	--	0.021	0.023 J	0.021 J	0.048 J	0.026 J	0.022 U	0.045 J	0.022 U	0.022 U
BENZO(A)PYRENE	UG/L	--	--	0.024	0.023 U	0.023 U	0.024 U	0.025 U	0.025 U	0.024 U	0.025 U	0.076 U
BENZO(B)FLUORANTHENE	UG/L	--	--	0.024	0.023 U	0.023 U	0.024 U	0.025 U	0.025 U	0.024 U	0.025 U	0.042 U
BENZO(GHI)PERYLENE	UG/L	--	--	0.029	0.028 U	0.028 U	0.029 U	0.03 U	0.03 U	0.029 U	0.03 U	0.12 U
BENZO(K)FLUORANTHENE	UG/L	--	--	0.019	0.019 U	0.019 U	0.019 U	0.02 U	0.02 U	0.019 U	0.02 U	0.06 U
CHRYSENE	UG/L	--	--	0.019	0.019 U	0.019 U	0.039 J	0.02 U	0.02 U	0.035 J	0.02 U	0.034 U
DIBENZO(A,H)ANTHRACENE	UG/L	--	--	0.030	0.029 U	0.029 U	0.029 U	0.031 U	0.031 U	0.03 U	0.031 U	0.15 U
FLUORANTHENE	UG/L	--	--	0.030	0.086 J	0.074 J	0.35	0.1 J	0.031 U	0.23	0.031 U	0.027 U
FLUORENE	UG/L	--	--	0.035	0.055 J	0.21	0.14 J	0.11 J	0.036 J	0.15 J	0.043 J	**0.04 J**
INDENO(1,2,3-CD)PYRENE	UG/L	--	--	0.024	0.023 U	0.023 U	0.024 U	0.025 U	0.025 U	0.024 U	0.025 U	0.1 U
NAPHTHALENE	UG/L	--	--	0.037	0.036 U	0.2	0.11 J	0.12 J	0.078 J	0.11 J	0.038 U	0.038 U
PHENANTHRENE	UG/L	--	--	0.030	0.15 J	0.42	0.62	0.32	0.13 J	0.5	0.12 J	**0.13 J**
PYRENE	UG/L	--	--	0.023	0.065 J	0.068 J	0.37	0.11 J	0.027 J	0.24	0.024 U	0.024 U
TOTAL PAHs (ND=0)	UG/L	--	--	--	**0.444**	**1.278**	**2.487**	**1.019**	**0.323**	**1.625**	**0.223**	**0.17**
TOTAL PAHs (ND=1/2DL)	UG/L	--	--	--	**0.635**	**1.44**	**2.643**	**1.1915**	**0.5345**	**1.7815**	**0.4655**	**0.599**

There are no EPAACUTESV and EPACHRONICSV values for standard elutriate PAHs.
NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
U = compound was analyzed but not detected
EPAACUTESV = EPA acute screening value
EPACHRONICSV = EPA chronic screening value

TABLE A-20. CHLORINATED PESTICIDE CONCENTRATIONS (UG/L) IN STANDARD ELUTRIATES AND SITE WATER FOR PROPOSED MASONVILLE BORROW MATERIAL (JANUARY 2006)
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

ANALYTE	UNITS	EPAACUTESV	EPACHRONICSV	MDL	EB-1-ELUT	EB-2-ELUT	EB-3-ELUT	EB-4-ELUT	EB-5-ELUT	EB-6-ELUT	EB-7-ELUT	EB-SITE CONTROL WATER
4,4'-DDD	UG/L	--	--	0.015	0.015 U	0.015 U	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U	0.019 U
4,4'-DDE	UG/L	--	--	0.015	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.016 U
4,4'-DDT	UG/L	0.13	0.001	0.014	0.014 U b	0.014 U b	0.014 U b	0.014 U b	0.015 U b	0.014 U b	0.014 U b	0.017 U b
ALDRIN	UG/L	1.3	--	0.013	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U	0.013 U	0.013 U	0.019 U
ALPHA-BHC	UG/L	--	--	0.013	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U	0.013 U	0.013 U	0.016 U
BETA-BHC	UG/L	--	--	0.015	0.015 U	0.015 U	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U	0.016 U
CHLORDANE (TECHNICAL	UG/L	0.09	0.004	0.170	0.17 U ab	0.17 U ab	0.17 U ab	0.17 U ab	0.17 U ab	0.17 U ab	0.17 U ab	0.025 U b
CHLOROBENSIDE	UG/L	--	--	0.030	0.03 U	0.03 U	0.03 U	0.03 U	0.031 U	0.03 U	0.03 U	0.032 U
DCPA	UG/L	--	--	0.030	0.03 U	0.03 U	0.03 U	0.03 U	0.031 U	0.03 U	0.03 U	0.032 U
DELTA-BHC	UG/L	--	--	0.015	0.015 U	0.015 U	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U	0.018 U
DIELDRIN	UG/L	0.71	0.0019	0.015	0.015 U b	0.015 U b	0.015 U b	0.015 U b	0.016 U b	0.015 U b	0.015 U b	0.022 U b
ENDOSULFAN I	UG/L	0.034	0.0087	0.015	0.015 U b	0.015 U b	0.015 U b	0.015 U b	0.015 U b	0.015 U b	0.015 U b	0.016 U b
ENDOSULFAN II	UG/L	0.034	0.0087	0.027	0.026 U b	0.026 U b	0.026 U b	0.027 U b	0.028 U b	0.026 U b	0.027 U b	0.022 U b
ENDOSULFAN SULFATE	UG/L	--	--	0.016	0.016 U	0.016 U	0.016 U	0.016 U	0.017 U	0.016 U	0.016 U	0.025 U
ENDRIN	UG/L	0.037	0.0023	0.014	0.014 U b	0.014 U b	0.014 U b	0.014 U b	0.015 U b	0.014 U b	0.014 U b	0.018 U b
ENDRIN ALDEHYDE	UG/L	--	--	0.015	0.015 U	0.015 U	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U	0.016 U
GAMMA-BHC (LINDANE)	UG/L	0.16	--	0.014	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
HEPTACHLOR	UG/L	0.053	0.0036	0.013	0.013 U b	0.013 U b	0.013 U b	0.013 U b	0.014 U b	0.013 U b	0.013 U b	0.015 U b
HEPTACHLOR EPOXIDE	UG/L	0.053	0.0036	0.015	0.015 U b	0.015 U b	0.015 U b	0.015 U b	0.015 U b	0.015 U b	0.015 U b	0.023 U b
METHOXYCHLOR	UG/L	--	0.03	0.030	0.03 U	0.03 U	0.03 U	0.03 U	0.031 U b	0.03 U	0.03 U	0.03 U
MIREX	UG/L	--	0.001	0.016	0.016 U b	0.016 U b	0.016 U b	0.016 U b	0.017 U b	0.016 U b	0.016 U b	0.017 U b
TOXAPHENE	UG/L	0.21	0.0002	0.069	0.068 U b	0.068 U b	0.068 U b	0.069 U b	0.071 U b	0.068 U b	0.069 U b	0.084 U b
HEXACHLOROBENZENE	UG/L	--	--	0.013	--	--	--	--	--	--	--	0.013 U

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
EPAACUTESV = EPA acute screening value
EPACHRONICSV = EPA chronic screening value
a = value greater than EPAACUTESV
b = value greater than EPACHRONICSV
U = compound was analyzed but not detected

TABLE A-21. ORGANOPHOSPHORUS PESTICIDE CONCENTRATIONS (UG/L) IN STANDARD ELUTRIATES AND SITE WATER FOR PROPOSED MASONVILLE BORROW MATERIAL (JANUARY 2006)

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

ANALYTE	UNITS	EPAACUTESV	EPACHRONICSV	MDL	EB-1-ELUT	EB-2-ELUT	EB-3-ELUT	EB-4-ELUT	EB-5-ELUT	EB-6-ELUT	EB-7-ELUT	EB-SITE CONTROL WATER
AZINPHOS METHYL	UG/L	--	0.1	0.263	0.26 U b	0.26 U b	0.26 U b	0.26 U b	0.27 U b	0.26 U b	0.27 U b	0.13 U b
DEMETON	UG/L	--	0.1	0.713	0.71 U b	0.71 U b	0.71 U b	0.71 U b	0.72 U b	0.71 U b	0.72 U b	0.38 U b
MALATHION	UG/L	--	0.1	0.234	0.23 U b	0.23 U b	0.23 U b	0.23 U b	0.24 U b	0.24 U b	0.24 U b	0.071 U
METHYL PARATHION	UG/L	--	--	0.260	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.042 U
PARATHION	UG/L	--	--	0.224	0.22 U	0.22 U	0.22 U	0.22 U	0.23 U	0.23 U	0.23 U	0.081 U

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
U = compound was analyzed but not detected
EPAACUTESV = EPA acute screening value
EPACHRONICSV = EPA chronic screening value
b = value greater than EPACHRONICSV

TABLE A-22. DIOXION AND FURAN CONGENER CONCENTRATIONS (PG/L) IN STANDARD ELUTRIATES AND SITE WATER FOR PROPOSED MASONVILLE BORROW MATERIAL (JANUARY 2006)
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

					Sample ID							
ANALYTE	**UNITS**	**EPAACUTESV**	**EPACHRONICSV**	**RL**	**EB-1-ELUT**	**EB-2-ELUT**	**EB-3-ELUT**	**EB-4-ELUT**	**EB-5-ELUT**	**EB-6-ELUT**	**EB-7-ELUT**	**EB-SITE CONTROL WATER**
2,3,7,8-TCDD	PG/L	--	--	9.757	9.5 U	9.5 U	10 U	9.5 U	10 U	9.9 U	9.9 U	9.5 U
1,2,3,7,8-PECDD	PG/L	--	--	49.143	48 U	48 U	50 U	48 U	50 U	50 U	50 U	48 U
1,2,3,4,7,8-HXCDD	PG/L	--	--	49.143	48 U	48 U	50 U	48 U	50 U	50 U	50 U	48 U
1,2,3,6,7,8-HXCDD	PG/L	--	--	49.143	48 U	48 U	50 U	48 U	50 U	50 U	50 U	48 U
1,2,3,7,8,9-HXCDD	PG/L	--	--	49.143	48 U	48 U	50 U	48 U	50 U	50 U	50 U	48 U
1,2,3,4,6,7,8-HPCDD	PG/L	--	--	49.143	**1.6 J**	**6.4 Q J**	**4.7 J**	**3.3 J**	50 U	**11 J**	**4.4 J**	**2.2 Q J**
OCDD	PG/L	--	--	97.571	**20 B J**	**77 B J**	**120 B**	**85 B J**	**12 B J**	**150 B**	**83 B J**	**37 B J**
2,3,7,8-TCDF	PG/L	--	--	9.757	9.5 U	9.5 U	10 U	9.5 U	10 U	**1.9 Q J**	9.9 U	9.5 U
1,2,3,7,8-PECDF	PG/L	--	--	49.143	48 U	48 U	50 U	48 U	50 U	50 U	50 U	48 U
2,3,4,7,8-PECDF	PG/L	--	--	49.143	48 U	48 U	50 U	48 U	50 U	50 U	50 U	48 U
1,2,3,4,7,8-HXCDF	PG/L	--	--	49.143	48 U	48 U	50 U	48 U	50 U	50 U	50 U	48 U
1,2,3,6,7,8-HXCDF	PG/L	--	--	49.143	48 U	**1.2 Q J**	50 U	**0.68 J**	**0.83 Q J**	**3.4 Q J**	50 U	48 U
2,3,4,6,7,8-HXCDF	PG/L	--	--	49.143	48 U	48 U	50 U	48 U	50 U	50 U	50 U	48 U
1,2,3,7,8,9-HXCDF	PG/L	--	--	49.143	48 U	48 U	50 U	48 U	50 U	50 U	50 U	48 U
1,2,3,4,6,7,8-HPCDF	PG/L	--	--	49.143	48 U	**2.4 Q B J**	50 U	48 U	50 U	**7.3 B J**	50 U	**0.56 B J**
1,2,3,4,7,8,9-HPCDF	PG/L	--	--	49.143	48 U	48 U	50 U	48 U	50 U	50 U	50 U	48 U
OCDF	PG/L	--	--	97.571	95 U	**6.6 B J**	**1.4 B J**	95 U	100 U	**16 B J**	99 U	**1.5 Q B J**
DIOXIN TEQ (ND=0)	PG/L	--	--	--	**0.016**	**0.184**	**0.047**	**0.101**	**0.083**	**0.64**	**0.044**	**0.022**
DIOXIN TEQ (ND=1/2DL)	PG/L	--	--	--	**59.72575**	**57.249**	**62.297**	**57.41075**	**60.088**	**59.59**	**62.24395**	**59.487**

There are no EPAACUTESV and EPACHRONICSV values for dioxin and furan congeners.
NOTE: Shaded and bold values represent detected concentrations.
RL = average reporting limit
B = analyte is present in the associated method blank
J = compound was detected, but below the reporting limit (value is estimated)
Q = estimated maximum possible concentration.
U = compound was analyzed but not detected
EPAACUTESV = EPA acute screening value
EPACHRONICSV = EPA chronic screening value

TABLE A-23. BUTYLTIN CONCENTRATIONS (UG/L) IN STANDARD ELUTRIATES AND SITE WATER FOR PROPOSED MASONVILLE BORROW MATERIAL (JANUARY 2006)
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

ANALYTE	UNITS	EPAACUTESV	EPACHRONICSV	RL	EB-1-ELUT	EB-2-ELUT	EB-3-ELUT	EB-4-ELUT	EB-5-ELUT	EB-6-ELUT	EB-7-ELUT	EB-SITE CONTROL WATER
DIBUTYLTIN	UG/L	--	--	0.038	0.038 U	0.038 U	0.039 U	0.038 U	0.039 U	0.038 U	0.038 U	0.037 U
MONOBUTYLTIN	UG/L	--	--	0.160	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.15 U
TETRABUTYLTIN	UG/L	--	--	0.050	0.049 U	0.049 U	0.05 U	0.049 U	0.05 U	0.05 U	0.05 U	0.048 U
TRIBUTYLTIN	UG/L	0.37	0.01	0.044	0.044 U b	0.044 U b	0.045 U b	0.044 U b	0.045 U b	0.044 U b	0.044 U b	0.043 U b

NOTE: Shaded and bold values represent detected concentrations.
RL = average reporting limit
U = compound was analyzed but not detected
EPAACUTESV = EPA acute screening value
EPACHRONICSV = EPA chronic screening value
b = value greater than EPACHRONICSV

TABLE A-24. SEMIVOLATILE ORGANIC COMPOUND (SVOC) CONCENTRATIONS (UG/L) IN STANDARD ELUTRIATES AND SITE WATER FOR PROPOSED MASONVILLE BORROW MATERIAL (JANUARY 2006)

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

					Sample ID							
ANALYTE	**UNITS**	**EPAACUTESV**	**EPACHRONICSV**	**MDL**	**EB-1-ELUT**	**EB-2-ELUT**	**EB-3-ELUT**	**EB-4-ELUT**	**EB-5-ELUT**	**EB-6-ELUT**	**EB-7-ELUT**	**EB-SITE CONTROL WATER**
1,2,4-TRICHLOROBENZENE	UG/L	--	--	1.343	1.3 U	1.3 U	1.3 U	1.4 U	1.4 U	1.3 U	1.4 U	6.1 U
1,2-DICHLOROBENZENE	UG/L	--	--	1.343	1.3 U	1.3 U	1.3 U	1.4 U	1.4 U	1.3 U	1.4 U	7.4 U
1,2-DIPHENYLHYDRAZINE	UG/L	--	--	1.300	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	3.4 U
1,3-DICHLOROBENZENE	UG/L	--	--	1.243	1.2 U	1.2 U	1.2 U	1.3 U	1.3 U	1.2 U	1.3 U	5.2 U
1,4-DICHLOROBENZENE	UG/L	--	--	1.286	1.2 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	5.1 U
2,4,6-TRICHLOROPHENOL	UG/L	--	--	1.457	1.4 U	1.4 U	1.4 U	1.5 U	1.5 U	1.5 U	1.5 U	3.1 U
2,4-DICHLOROPHENOL	UG/L	--	--	1.300	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	3.4 U
2,4-DIMETHYLPHENOL	UG/L	--	--	1.771	1.7 U	1.7 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	3.5 U
2,4-DINITROPHENOL	UG/L	--	--	14.429	14 U	14 U	14 U	15 U	15 U	14 U	15 U	22 U
2,4-DINITROTOLUENE	UG/L	--	--	1.257	1.2 U	1.2 U	1.2 U	1.3 U	1.3 U	1.3 U	1.3 U	5.2 U
2,6-DINITROTOLUENE	UG/L	--	--	1.357	1.3 U	1.3 U	1.3 U	1.4 U	1.4 U	1.4 U	1.4 U	1.1 U
2-CHLORONAPHTHALENE	UG/L	--	--	1.386	1.3 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	5.9 U
2-CHLOROPHENOL	UG/L	--	--	1.343	1.3 U	1.3 U	1.3 U	1.4 U	1.4 U	1.3 U	1.4 U	2.9 U
2-METHYLPHENOL	UG/L	--	--	1.500	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	2.6 U
2-NITROPHENOL	UG/L	--	--	2.914	2.8 U	2.8 U	2.9 U	3 U	3 U	2.9 U	3 U	3.4 U
3,3'-DICHLOROBENZIDINE	UG/L	--	--	24.429	24 U	24 U	24 U	25 U	25 U	24 U	25 U	6.9 U
4,6-DINITRO-2-METHYLPHENOL	UG/L	--	--	9.400	9.1 U	9.2 U	9.3 U	9.6 U	9.6 U	9.4 U	9.6 U	20 U
4-BROMOPHENYL PHENYL ETHER	UG/L	--	--	1.200	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1 U
4-CHLORO-3-METHYLPHENOL	UG/L	--	--	1.271	1.2 U	1.2 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.1 U
4-CHLOROPHENYL PHENYL ETHER	UG/L	--	--	1.571	1.5 U	1.5 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.4 U
4-METHYLPHENOL	UG/L	--	--	3.414	3.3 U	3.3 U	3.4 U	3.5 U	3.5 U	3.4 U	3.5 U	1.5 U
4-NITROPHENOL	UG/L	--	--	1.743	1.7 U	1.7 U	1.7 U	1.8 U	1.8 U	1.7 U	1.8 U	16 U
ACENAPHTHENE	UG/L	--	--	0.037	**0.065 J**	**0.24**	**0.63**	**0.19 J**	**0.052 J**	**0.23**	**0.06 J**	0.038 U
BENZOIC ACID	UG/L	--	--	38.000	37 U	37 U	37 U	39 U	39 U	38 U	39 U	5.2 U
BENZYL ALCOHOL	UG/L	--	--	1.857	1.8 U	1.8 U	1.8 U	1.9 U	1.9 U	1.9 U	1.9 U	8 U
BIS(2-CHLOROETHOXY)METHANE	UG/L	--	--	3.329	3.2 U	3.3 U	3.3 U	3.4 U	3.4 U	3.3 U	3.4 U	4 U
BIS(2-CHLOROETHYL) ETHER	UG/L	--	--	1.400	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	2.4 U
BIS(2-CHLOROISOPROPYL) ETHER	UG/L	--	--	1.657	1.6 U	1.6 U	1.6 U	1.7 U	1.7 U	1.7 U	1.7 U	6.2 U
BIS(2-ETHYLHEXYL) PHTHALATE	UG/L	--	--	0.884	0.85 U	0.86 U	0.87 U	0.91 U	0.91 U	0.88 U	0.91 U	1.6 U
BUTYL BENZYL PHTHALATE	UG/L	--	--	0.980	**40**	0.96 U	0.97 U	1 U	1 U	0.98 U	1 U	2.9 U
DIBENZOFURAN	UG/L	--	--	1.471	1.4 U	1.4 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	6.1 U
DIETHYL PHTHALATE	UG/L	--	--	1.100	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.5 U
DIMETHYL PHTHALATE	UG/L	--	--	1.243	1.2 U	1.2 U	1.2 U	1.3 U	1.3 U	1.2 U	1.3 U	1.3 U
DI-N-BUTYL PHTHALATE	UG/L	--	--	1.071	1 U	1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.3 U
DI-N-OCTYL PHTHALATE	UG/L	--	--	0.924	0.89 U	0.9 U	0.91 U	0.95 U	0.95 U	0.92 U	0.95 U	1.6 U
HEXACHLOROBENZENE	UG/L	--	--	0.012	0.012 U	0.012 U	0.012 U	0.012 U	0.013 U	0.012 U	0.012 U	0.013 U
HEXACHLOROBUTADIENE	UG/L	--	--	1.443	1.4 U	1.4 U	1.4 U	1.5 U	1.5 U	1.4 U	1.5 U	8.2 U
HEXACHLOROCYCLOPENTADIENE	UG/L	--	--	6.114	5.9 U	5.9 U	6 U	6.3 U	6.3 U	6.1 U	6.3 U	1.1 U
HEXACHLOROETHANE	UG/L	--	--	1.343	1.3 U	1.3 U	1.3 U	1.4 U	1.4 U	1.3 U	1.4 U	7.2 U
ISOPHORONE	UG/L	--	--	1.357	1.3 U	1.3 U	1.3 U	1.4 U	1.4 U	1.4 U	1.4 U	6.3 U
NITROBENZENE	UG/L	--	--	1.443	1.4 U	1.4 U	1.4 U	1.5 U	1.5 U	1.4 U	1.5 U	2.3 U
N-NITROSODIMETHYLAMINE	UG/L	--	--	1.643	1.6 U	1.6 U	1.6 U	1.7 U	1.7 U	1.6 U	1.7 U	1.1 U
N-NITROSODI-N-PROPYLAMINE	UG/L	--	--	1.486	1.4 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	3.9 U
N-NITROSODIPHENYLAMINE	UG/L	--	--	4.086	3.9 U	4 U	4 U	4.2 U	4.2 U	4.1 U	4.2 U	3.2 U
PENTACHLOROPHENOL	UG/L	13	7.9	0.797	0.77 U	0.78 U	0.78 U	0.82 U	0.82 U	0.79 U	0.82 U	21 U ab
PHENOL	UG/L	--	--	1.943	1.9 U	1.9 U	1.9 U	2 U	2 U	1.9 U	2 U	2.8 U
PYRENE	UG/L	--	--	0.023	**0.065 J**	**0.068 J**	**0.37**	**0.11 J**	**0.027 J**	**0.24**	0.024 U	0.024 U

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
J = compound was detected, but below the reporting limit (value is estimated)
U = compound was analyzed but not detected
EPAACUTESV = EPA acute screening value
EPACHRONICSV = EPA chronic screening value

TABLE A-25. NUTRIENT CONCENTRATIONS AT CHESAPEAKE BAY PROGRAM MONITORING LOCATION WT5.1

MASONVILLE DREGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

		FALL SAMPLING RESULTS*			WINTER SAMPLING RESULTS*		
ANALYTE	**UNITS**	**MINIMUM**	**MAXIMUM**	**AVERAGE**	**MINIMUM**	**MAXIMUM**	**AVERAGE**
NITRITE	mg N/L	0.002	0.264	0.048	0.0069	0.0332	0.016
AMMONIUM	mg N/L	0.003	0.373	0.085	0.008	0.362	0.126
NITRATE	mg N/L	0.004	0.878	0.270	0.1017	1.136	0.637
TOTAL DISSOLVED NITROGEN	mg N/L	0.368	1.521	0.826	0.62	1.818	1.09
PARTICULATE NITROGEN	mg N/L	0.126	2.73	0.355	0.0987	0.788	0.287
PHOSPHATE	mg P/L	0.0018	0.053	0.016	0.0016	0.022	0.008
TOTAL DISSOLVED PHOSPHORUS	mg P/L	0.01	0.081	0.029	0.0083	0.047	0.016
PARTICULATE PHOSPHORUS	mg P/L	-0.001	0.1906	0.040	0.01	0.146	0.035
DISSOLVED ORGANIC CARBON	mg C/L	3.25	6.27	4.18	2.91	4.92	3.71
PARTICULATE CARBON	mg C/L	0.645	16.4	1.96	0.572	4.93	1.70
TOTAL SUSPENDED SOLIDS	mg/L	2	35	10.3	2.4	22	9.34
PHEOPHYTIN	mg/L	0.199	15.57	4.09	0	7.925	2.44
CHLOROPHYLL A	mg/L	2.99	199.05	19.9	3.32	115.13	13.8

*Data represents surface water concentrations at WT5.1 from the Autumn months (September, October and November) Winter months (December, January, February) collected from 1995 through 2004. Data from 2005 were not yet available.

		SPRING SAMPLING RESULTS**			SUMMER SAMPLING RESULTS**		
ANALYTE	**UNITS**	**MINIMUM**	**MAXIMUM**	**AVERAGE**	**MINIMUM**	**MAXIMUM**	**AVERAGE**
NITRITE	mg N/L	0.003	0.039	0.017	0.001	0.17	0.024
AMMONIUM	mg N/L	0.003	0.546	0.120	0.003	0.558	0.120
NITRATE	mg N/L	0.0761	1.465	0.699	-0.0013	1.817	0.192
TOTAL DISSOLVED NITROGEN	mg N/L	0.43	2.135	1.17	0.298	2.977	0.740
PARTICULATE NITROGEN	mg N/L	0.161	0.9	0.373	0.085	2.1	0.450
PHOSPHATE	mg P/L	0.0016	0.03	0.007	0.0017	0.0579	0.011
TOTAL DISSOLVED PHOSPHORUS	mg P/L	0.0079	0.061	0.017	0.0072	0.132	0.025
PARTICULATE PHOSPHORUS	mg P/L	0.007	0.112	0.036	0.009	0.199	0.049
DISSOLVED ORGANIC CARBON	mg C/L	2.55	6.81	3.57	2.87	9.83	4.19
PARTICULATE CARBON	mg C/L	0.984	6	2.28	0.52	12.6	2.65
TOTAL SUSPENDED SOLIDS	mg/L	1	29	11.6	2.6	63	13.9
PHEOPHYTIN	mg/L	0	14.802	3.75	0	20.036	5.55
CHLOROPHYLL A	mg/L	2.99	87.84	20.1	1.2	201.85	31.8

**Data represents surface water concentrations at WT5.1 from the Spring months (March, April and May) and the Summer months (June, July, and August) collected from 1995 through 2004. Data from 2005 were not yet available.

Source : Chesapeake Bay Program Water Quality Monitoring Program, Annapolis, MD. Monitoring location WT5.1 is located in the Patapsco River and is tidal influenced, mesohaline, and approximately 40 ft deep.

TABLE A-26. Required containers, preservation techniques, and holding times for sediment samples. [(a)]

Parameter	Voume Required[(b)]	Container[(c)]	Preservative	Holding Time
Inorganics				
Metals (including Mercury)	4 oz.	P,G	4°C	6 months (28 days for Hg)
Biochemical Oxygen Demand	8 oz.	P,G	4°C	48 hours
Chemical Oxygen Demand	(d)	P,G	4°C	28 days
Cyanide	(d)	P,G	4°C	14 days
Sulfide	(d)	P,G	4°C	7 days
Acid Volatile Sulfides (AVS)	4 oz	P, G	4°C (no headspace)	14 days
Nitrogen (Ammonia, Nitrate + Nitrite)	(d)	P,G	4°C	28 days
Nitrogen (Total Kjeldahl), Total Phosphorus	4 oz	P,G	4°C	28 days
Physical Parameters				
Grain Size, Specific Gravity, Atterberg Limits	32 oz.	P,G	4°C	6 months
Moisture Content	(d).	P,G	4°C	6 months
Organics				
Total Organic Carbon	4 oz	G	4°C	14 days
Pesticides (Organochlorine and Organophosphate), Semivolatile Organics, Polynuclear Aromatic Hydrocarbons, PCB Congeners	32 oz	G	4°C	14 days until extraction, 40 days after extraction
Organotins	8 oz	G	4°C	14 days until extraction, 40 days after extraction
Polychlorinated Dioxins/Furans	4 oz.	G	4°C	1 year until extraction, 40 days after extraction

(a) From time of sample collection.
(b) Additional volume was provided for samples designated as MS/MSDs.
(c) P = plastic; G = glass.
(d) Sufficient volume provided from the 8 oz. noted under Biochemical Oxygen Demand

TABLE A-27. MARINE SEDIMENT QUALITY GUIDELINES (SQGs).

Chemical Name	Units	Threshold Effects Level (TEL)	Probable Effects Level (PEL)
METALS			
ARSENIC	mg/kg	7.24	41.6
CADMIUM	mg/kg	0.676	4.21
CHROMIUM	mg/kg	52.3	160.4
COPPER	mg/kg	18.7	108.2
LEAD	mg/kg	30.24	112.18
MERCURY	mg/kg	0.13	0.696
NICKEL	mg/kg	15.9	42.8
SILVER	mg/kg	0.73	1.77
ZINC	mg/kg	124	271
CHLORINATED PESTICIDES			
CHLORDANE	µg/kg	2.26	4.79
4,4-DDD	µg/kg	1.22	7.81
4,4-DDE	µg/kg	2.07	374.17
4,4-DDT	µg/kg	1.19	4.77
DIELDRIN	µg/kg	0.715	4.3
GAMMA-BHC	µg/kg	0.32	0.99
PAHs			
2-METHYLNAPHTHALENE	µg/kg	20.21	201.28
ACENAPHTHENE	µg/kg	6.71	88.9
ACENAPHTHYLENE	µg/kg	5.87	127.87
ANTHRACENE	µg/kg	46.85	245
BENZO(A)PYRENE	µg/kg	88.81	763.22
BENZ(A)ANTHRACENE	µg/kg	74.83	692.53
CHRYSENE	µg/kg	107.77	845.98
DIBENZ(A,H)ANTHRACENE	µg/kg	6.22	134.61
FLUORANTHENE	µg/kg	112.82	1493.54
FLUORENE	µg/kg	21.17	144.35
NAPHTHALENE	µg/kg	34.57	390.64
PHENANTHRENE	µg/kg	86.68	543.53
PYRENE	µg/kg	152.66	1397.6
PAHs, TOTAL	µg/kg	1684.06	16770.4
PCBs			
PCBs, TOTAL	µg/kg	21.55	188.79
SEMIVOLATILE ORGANIC COMPOUNDS			
BIS(2-ETHYLHEXYL)PHTHALATE	µg/kg	182.16	2646.51

Source: MacDonald et al. 1996. Ecotoxicology 5: 253-278.

TABLE A-28. PHYSICAL PARAMETERS OF SEDIMENT FROM WITHIN THE PROPOSED ALIGNMENT
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

ANALYTE	Sample ID / UNITS	M-B1	M-B2	M-B3	MSN03-JV1	MSN03-JV2	MSN03-JV3	MSN03-JV4	MSN03-JV5
GRAVEL	%	2.6	0.7	7	2	0	0	0	0
SAND	%	46.3	7.3	27.1	28	6	1	10	14
SILT	%	36.5	71.7	49.1	41	65	65	46	63
CLAY	%	14.6	20.3	16.8	29	29	34	44	23
SILT+CLAY	%	51.1	92	65.9	70	94	99	90	86
LIQUID LIMIT	--	NA	NA	NA	49	67	78	48	58
PLASTIC LIMIT	--	NA	NA	NA	30	34	38	26	36
PLASTICITY INDEX	--	21	29	29	19	33	40	22	22
MOISTURE CONTENT	%	114.6	135.7	116.8	132.6	129.4	169.5	127.1	95.6
PERCENT SOLIDS	%	48.5	43.2	47.7	43	43.6	37.1	44	51.1
SPECIFIC GRAVITY	--	2.63	2.6	2.53	2.44	2.67	2.68	2.65	2.73

NA = constituent was not analyzed for this sample

TABLE A-28. CONTINUED
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

					KURT IRON		WET BASIN
ANALYTE	Sample ID / UNITS	M-B7	M-B8	MSNSURF05-1-S	M-B5	M-B6	MBSURF05-1
GRAVEL	%	0	0	0	0	0.9	0
SAND	%	10.4	6.8	9.9	9.5	60.6	7.7
SILT	%	64.4	68	63.5	71.7	25.7	77.8
CLAY	%	25.1	25.2	26.7	18.8	12.8	14.4
SILT+CLAY	%	89.5	93.2	90.2	90.5	38.5	92.2
LIQUID LIMIT	--	67	63	62	81	41	NA
PLASTIC LIMIT	--	38	37	41	47	0	NA
PLASTICITY INDEX	--	29	26	21	34	NA	NA
MOISTURE CONTENT	%	NA	NA	NA	NA	NA	NA
PERCENT SOLIDS	%	41.1	47.1	44.9	29	55.2	24.2
SPECIFIC GRAVITY	--	2.57	2.55	2.678	2.54	2.6	2.69

NA = constituent was not analyzed for this sample

TABLE A-29. GENERAL CHEMISTRY CONCENTRATIONS IN SEDIMENT FROM WITHIN THE PROPOSED ALIGNMENT
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

		Sample ID	M-B1	M-B2	M-B3	MSN03-JV1	MSN03-JV2	MSN03-JV3	MSN03-JV4	MSN03-JV5
ANALYTE	**UNITS**	**MDL**								
TOTAL ORGANIC CARBON	%	0.13	**2.04**	**2.96**	**2.59**	**3.60**	**2.70**	**3.40**	**3.11**	**3.14**
AMMONIA NITROGEN	MG/KG	6.16	**59.3**	**39.2**	**90.7**	**105**	**56.4**	**116**	**62.3**	**66.2**
NITRATE-NITRITE	MG/KG	0.68	0.56 U	0.62 U	0.57 U	**3.8**	0.68 U	0.72 U	0.66 U	0.58 U
TOTAL KJELDAHL NITROGEN	MG/KG	121.6	**1,540 J**	**2,500 J**	**1,980 J**	**1,540**	**1,610**	**1,620**	**1,200**	**927**
BIOCHEMICAL OXYGEN DEMAND	MG/KG	303.4	**4,010**	**3,250**	**1,630**	**11,300**	**8,920**	**10,500**	**7,540**	**7,040**
CHEMICAL OXYGEN DEMAND	MG/KG	25.28	20.6 U	23.1 U	21 U	**613**	**551**	26.8 U	**307**	21.5 U
ASBESTOS	%	NA	ND	ND	ND	ND	ND	ND	ND	ND
CYANIDE, TOTAL	MG/KG	0.436	0.36 U	0.4 U	**0.38 B**	0.49 U	0.44 U	**1.4**	0.42 U	**0.43 B**
OIL & GREASE	MG/KG	195.2	NA	NA	NA	**960**	**558**	**536**	**581**	**644**
pH	--	--	NA	NA	NA	**8.2**	**8.2**	**8**	**8.1**	**8**
TOTAL PHOSPHORUS	MG/KG	58.14	**406**	**331**	**576**	**494**	**308**	**701**	56.4 U	49.4 U
TOTAL SULFIDE	MG/KG	2.52	**659**	**916**	**218**	**4,070**	**2,590**	**2,750**	**1,870**	**1,190**
ACID VOLATILE SULFIDE	UMOLE/G	1.26	NA	NA	NA	**132**	**49.6**	**48.3**	**55.5**	**42.1**

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
NA = constituent was not analyzed for this sample
ND = constituent was not detected for this sample
B (inorganic) **=** compound was detected, but below reporting limit (value is estimated).
J (inorganic) **=** compound was detected in method blank
U = compound was analyzed but not detected

TABLE A-29. CONTINUED

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

						KURT IRON		WET BASIN
		Sample ID	M-B7	M-B8	MSNSURF05-1-S	M-B5	M-B6	WBSURF05-1
ANALYTE	UNITS	MDL						
TOTAL ORGANIC CARBON	%	0.13	**3.31**	**1.49**	**2.42**	**3.74**	**2.62**	**3.67**
AMMONIA NITROGEN	MG/KG	6.16	**104**	**67.4**	NA	**162**	**76.3**	NA
NITRATE-NITRITE	MG/KG	0.68	0.65 U	0.51 U	**1.6 B**	0.87 U	**0.67 B**	--
TOTAL KJELDAHL NITROGEN	MG/KG	121.6	**1,630 J**	**1,340 J**	**2,120**	**2,090 J**	**1,220 J**	**3,240**
BIOCHEMICAL OXYGEN DEMAND	MG/KG	303.4	**8,650**	**2,370**	**1,160**	**6990**	**3470**	--
CHEMICAL OXYGEN DEMAND	MG/KG	25.28	**151 B**	**71 B**	**254**	**158 B**	**63.5 B**	**1,220**
ASBESTOS	%	NA	ND	ND	ND	ND	ND	ND
CYANIDE, TOTAL	MG/KG	0.436	**0.94 B J**	**0.5 B J**	0.48 U	0.7 U	**0.4 B J**	--
OIL & GREASE	MG/KG	195.2	**634**	**652**	172 U	**582**	**665**	319 U
pH	--	--	**7.6**	**7.7**	NA	**7.9**	**7.9**	**8.2**
TOTAL PHOSPHORUS	MG/KG	58.14	**885**	**808**	**602**	**914**	**591**	**848**
TOTAL SULFIDE	MG/KG	2.52	**976**	**679**	**214**	**2,730**	**385**	NA
ACID VOLATILE SULFIDE	UMOLE/G	1.26	**35.9**	**27.4**	**14.2**	**78**	**5.4**	NA

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
NA = constituent was not analyzed for this sample
ND = constituent was not detected for this sample
B (inorganic) = compound was detected, but below reporting limit (value is estimated).
J (inorganic) = compound was detected in method blank
U = compound was analyzed but not detected

TABLE A-30. METAL CONCENTRATIONS (MG/KG) IN SEDIMENT FROM WITHIN THE PROPOSED ALIGNMENT
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

				Sample ID	M-B1	M-B2	M-B3	MSN03-JV1	MSN03-JV2	MSN03-JV3	MSN03-JV4	MSN03-JV5
ANALYTE	**UNITS**	**MDL**	**TEL***	**PEL***								
ALUMINUM	MG/KG	1.98	--	--	**12,600 E**	**17,300 E**	**13,600 E**	**20,600 E**	**20,900 E**	**20,600 E**	**19,300 E**	**17,600 E**
ANTIMONY	MG/KG	0.402	--	--	**1.1 N**	**0.62 BN**	**0.37 BN**	**0.95 BN**	**0.98 BN**	**1.3 BN**	**0.66 BN**	**0.63 BN**
ARSENIC	MG/KG	0.302	7.24	41.6	**18.1**	**11.7**	**15.7**	**64.3 E**	**24.9 E**	**23.7 E**	**38 E**	**13.2 E**
BARIUM	MG/KG	--	--	--	--	--	--	--	--	**23.7 E**	--	--
BERYLLIUM	MG/KG	0.036	--	--	**5.6**	**1.4**	**1.1**	**1.5**	**2**	**23.7 E**	**1.5**	**1.4**
CADMIUM	MG/KG	0.050	0.676	4.21	**0.74**	**0.47 B**	**0.62**	**2.5**	**1.2**	**23.7 E**	**1.1**	**0.85**
CALCIUM	MG/KG	--	--	--	--	--	--	--	--	**23.7 E**	--	--
CHROMIUM	MG/KG	0.079	52.3	160.4	**119 NE**	**90.5 NE**	**93 NE**	**229 E**	**176 E**	**23.7 E**	**125 E**	**107 E**
HEXAVALENT CHROMIUM	MG/KG	0.168	--	--	--	--	--	--	--	**23.7 E**	--	--
COBALT	MG/KG	0.074	--	--	**17.5 E**	**14.6 E**	**11.4 E**	**16.4 E**	**18.5 E**	**23.7 E**	**15.3 E**	**15.4 E**
COPPER	MG/KG	0.136	18.7	108.2	**353**	**118**	**102**	**399 E**	**220 E**	**23.7 E**	**213 E**	**110 E**
IRON	MG/KG	2.16	--		**29,200 E**	**28,600 E**	**24,500 E**	**36,800 E**	**34,900 E**	**23.7 E**	**30,700 E**	**28,000 E**
LEAD	MG/KG	0.330	30.24	112.18	**213 NE**	**85 NE**	**104 NE**	**223 E**	**147 E**	**23.7 E**	**142 E**	**96 E**
MAGNESIUM	MG/KG	--	--	--	--	--	--	--	--	**23.7 E**	--	--
MANGANESE	MG/KG	0.021	--	--	**326**	**293**	**303**	**277 E**	**346 E**	**23.7 E**	**272 E**	**272 E**
MERCURY	MG/KG	0.005	0.13	0.696	**0.7**	**0.36**	**0.29**	**1**	**0.64**	**23.7 E**	**0.74**	**0.37**
NICKEL	MG/KG	0.106	15.9	42.8	**56.2 E**	**33.2 E**	**25.6 E**	**41.7 E**	**46.5 E**	**23.7 E**	**34.8 E**	**33.5 E**
SELENIUM	MG/KG	0.292	--	--	**2**	**1.4**	**1.6**	**13.8**	**4**	**23.7 E**	**5.6**	**2.1**
SILVER	MG/KG	0.073	0.73	1.77	**0.62**	**0.37 B**	**0.38 B**	**0.78**	**0.78**	**23.7 E**	**0.48 B**	**0.35 B**
THALLIUM	MG/KG	0.500	--	--	0.41 U	0.46 U	0.42 U	0.56 U	0.5 U	**23.7 E**	0.49 U	0.42 U
TIN	MG/KG	0.576	--	--	**25.2**	**10.8 B**	**9.7 B**	**12.6 B**	**15.9**	**23.7 E**	**7.2 B**	**10.7 B**
ZINC	MG/KG	0.158	124	271	**1,790 E**	**262 E**	**230 E**	**483 E**	**495 E**	**23.7 E**	**336 E**	**268 E**
RATIO OF SEM/AVS	--	--	--	--	0.000089	0.11	0.49	0.045	0.21	0.18	0.086	0.093

**Source* : MacDonald et al. 1996. Ecotoxicology 5: 253-278.

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
TEL = threshold effects level
PEL = probable effects level
B (inorganic) = compound was detected, but below reporting limit (value is estimated).
E = reported value is estimated because of the presence of interference
J (inorganic) = compound was detected in method blank
N = spiked sample recovery is not within control limits
U = compound was analyzed but not detected

TABLE A-30. CONTINUED*

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

								KURT IRON	
				Sample ID	M-B7	M-B8	MSNSURF05-1-S	M-B5	M-B6
ANALYTE	**UNITS**	**MDL**	**TEL***	**PEL***					
ALUMINUM	MG/KG	1.98	--	--	--	--	--	NA	NA
ANTIMONY	MG/KG	0.402	--	--	--	--	1.8 N U	--	--
ARSENIC	MG/KG	0.302	7.24	41.6	**38.1**	**11.1**	**9.9**	**20.4**	**12.1**
BARIUM	MG/KG	--	--	--	**99.3**	**72.1**	--	**85.7**	**57.8**
BERYLLIUM	MG/KG	0.036	--	--	--	--	**1.4**	--	--
CADMIUM	MG/KG	0.050	0.676	4.21	**2.1**	**1.1**	**1.3**	**1.9**	**1.1**
CALCIUM	MG/KG	--	--	--	**1720**	**1230**	--	**4,850**	**2,390**
CHROMIUM	MG/KG	0.079	52.3	160.4	**225**	**66.3**	**74.3 E**	**193**	**129**
HEXAVALENT CHROMIUM	MG/KG	0.168	--	--	0.16 U	0.13 U	NA	NA	NA
COBALT	MG/KG	0.074	--	--	--	--	--	NA	NA
COPPER	MG/KG	0.136	18.7	108.2	**303**	**65.9**	**95.9 E**	**263**	**176**
IRON	MG/KG	2.16	--		**33,700**	**25,200**		**35,800**	**20,800**
LEAD	MG/KG	0.330	30.24	112.18	**157**	**53.7**	**69.3 E**	**204**	**141**
MAGNESIUM	MG/KG	--	--	--	**4500**	**4360**	--	**5,420**	**3,300**
MANGANESE	MG/KG	0.021	--	--	--	--	--	NA	NA
MERCURY	MG/KG	0.005	0.13	0.696	**0.75**	**0.22**	**0.24**	**0.91**	**0.8**
NICKEL	MG/KG	0.106	15.9	42.8	**46.5**	**34.3**	**33.7 E**	**43.5**	**28.8**
SELENIUM	MG/KG	0.292	--	--	**4.4**	**0.49 B**	**1.4**	**2.3**	**1.7**
SILVER	MG/KG	0.073	0.73	1.77	**1.1**	**0.41 B**	**0.42 B**	**0.95**	**0.51**
THALLIUM	MG/KG	0.500	--	--	--	--	**0.78 B**	--	--
TIN	MG/KG	0.576	--	--	--	--	--	NA	NA
ZINC	MG/KG	0.158	124	271	**541**	**162**	**219 E**	**582 d**	**357**
RATIO OF SEM/AVS	--	--	--	--	0.23	0.095	0.3	0.11	1.1

Source : MacDonald et al. 1996.

*Wet Basin was not tested for analytes described in table above

NOTE: Shaded and bold values represent detected concentrations.

MDL = average method detection limit

TEL = threshold effects level

PEL = probable effects level

B (inorganic) **=** compound was detected, but below reporting limit (value is estimated).

NA = constituent was not analyzed for this sample

E = reported value is estimated because of the presence of interference

J (inorganic) **=** compound was detected in method blank

N = spiked sample recovery is not within control limits

U = compound was analyzed but not detected

TABLE A-31. PCB CONGENER CONCENTRATIONS (UG/KG) IN SEDIMENT FROM WITHIN THE PROPOSED ALIGNMENT
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

				Sample ID	M-B1	M-B2	M-B3	MSN03-JV1	MSN03-JV2	MSN03-JV3	MSN03-JV4	MSN03-JV5
ANALYTE	**UNITS**	**MDL**	**TEL****	**PEL****								
PCB 8*	UG/KG	0.241	--	--	2.3 U	0.65 U	0.71 U	**4 PG**	0.35 U	**5.4 PG**	**3.3 PG**	**2.6 PG**
PCB 18*	UG/KG	0.160	--	--	**8.4 PG**	**1.8 J PG**	**2.4 PG**	**3.4 PG**	**13 PG**	**11 PG**	**5.4 PG**	**3.9 PG**
PCB 28*	UG/KG	0.260	--	--	**21 PG**	**6.2 PG**	**8.9 PG**	**6.1**	**19 PG**	**13 PG**	**4.7**	**6.1 PG**
PCB 44*	UG/KG	0.240	--	--	**18**	**4**	**6.3**	**2.6**	**11**	**10**	**2.6**	**3.5**
PCB 49	UG/KG	0.245	--	--	**23**	**5.8**	**11**	**3**	**13**	**13**	**2.2**	**4.6**
PCB 52*	UG/KG	0.233	--	--	**22**	**5.9**	**11**	**3.3**	**15**	**18**	**3**	**5.9**
PCB 66*	UG/KG	0.189	--	--	**18 PG**	**7.2**	**7.2 PG**	**4.2 PG**	**19**	**15 PG**	**3.2 PG**	**5.3 PG**
PCB 77*	UG/KG	0.252	--	--	**8.1 PG**	**3.7 PG**	**3.5 PG**	0.1 U	0.37 U	0.39 U	0.09 U	0.31 U
PCB 87	UG/KG	0.217	--	--	**21**	**2.5 PG**	**3.1 PG**	**1.9 PG**	**6.8 PG**	**5.9 PG**	**2 PG**	**1.8 PG**
PCB 101*	UG/KG	0.234	--	--	**44**	**8.8**	**15**	0.095 U	**21**	**23**	0.083 U	**8.8**
PCB 105*	UG/KG	0.243	--	--	**13**	**2.3**	0.91 U	**2.8**	**6.5**	**5.4**	**2.1**	**2.1**
PCB 118*	UG/KG	0.238	--	--	**41**	**5 PG**	**8.6**	**6.2**	**12 PG**	**19**	**4.4**	**6**
PCB 126*	UG/KG	0.306	--	--	2.5 U	0.69 U	0.75 U	0.12 U	0.45 U	0.47 U	0.11 U	0.38 U
PCB 128*	UG/KG	0.238	--	--	**8.4 PG**	**1.3 J PG**	**1.5 J PG**	**1.3 PG**	**3.5 PG**	**4 PG**	**0.91 PG**	**1.4 J PG**
PCB 138*	UG/KG	0.248	--	--	**43 PG**	**11**	**12 PG**	**7.5**	**18**	**21**	**4.9**	**9.5**
PCB 153*	UG/KG	0.241	--	--	**54**	**13 PG**	**26 PG**	**8.9**	**20**	**25**	**5.6**	**15**
PCB 156	UG/KG	0.234	--	--	**6.3 J PG**	0.84 U	**1.1 J PG**	**0.89 PG**	**3.3**	**3.1**	0.083 U	0.29 U
PCB 169*	UG/KG	0.227	--	--	3.8 U	1.1 U	1.2 U	0.093 U	0.33 U	0.35 U	0.081 U	0.28 U
PCB 170*	UG/KG	0.240	--	--	**24**	**2.8 PG**	**8.6**	**3.6**	**8**	**9.4**	**2.2**	**6.7**
PCB 180*	UG/KG	0.238	--	--	**44**	**9.1**	**17**	**7.4**	**15**	**19**	**4.6**	**13**
PCB 183	UG/KG	0.233	--	--	**14**	**2.9**	**4.5**	**1.4 PG**	**3.4 PG**	**3.8 PG**	**0.89 PG**	**2.6 PG**
PCB 184	UG/KG	0.200	--	--	1.7 U	0.48 U	0.52 U	0.081 U	0.29 U	0.31 U	0.071 U	0.25 U
PCB 187*	UG/KG	0.245	--	--	**25**	**6.7**	**12**	**4.4**	**8.1**	**10**	**2.7**	**7.4**
PCB 195	UG/KG	0.234	--	--	**4.3 J PG**	**0.96 J**	**2.4**	**0.65 PG**	**1.6 J**	0.36 U	**0.51**	0.29 U
PCB 206	UG/KG	0.233	--	--	**12**	**2.4**	**2.2**	**3.1**	**2.9**	**2.5 PG**	**1.4**	**2.3**
PCB 209	UG/KG	0.248	--	--	**5 J**	**2.1**	**2 J**	**3.7**	**2.6**	**2 PG**	**1.6 PG**	**0.97 J PG**
TOTAL PCBs (ND=0)	UG/KG	--	21.55	188.79	**784**	**178**	**280**	**131**	**378**	**416**	**99.2**	**194**
TOTAL PCBs (ND=1/2DL)	UG/KG	--	21.55	188.79	**805**	**184**	**288**	**133**	**385**	**422**	**101**	**199**

*PCB congeners used for Total PCB summation, as per Table 9-3 of the ITM (USEPA/USACE 1998)
***Source*: MacDonald et al. 1996. Ecotoxicology 5: 253-278.

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
TEL = threshold effects level
PEL = probable effects level
J = compound was detected, but below the reporting limit (value is estimated)
PG = the percent difference between the original and confirmation analysis is greater than 40%
U = compound was analyzed but not detected

TABLE A-31. CONTINUED
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

								KURT IRON		WET BASIN
				Sample ID	M-B7	M-B8	MSNSURF05-1-S	M-B5	M-B6	WBSURF05-01
ANALYTE	UNITS	MDL	TEL**	PEL**						
PCB 8*	UG/KG	0.241	--	--	**7.4 PG**	**8.8 PG**	**2.5 PG**	**2.4 J PG**	**2.6 J PG**	**2.9 J PG**
PCB 18*	UG/KG	0.160	--	--	**26**	**21**	**3.6 PG**	**4.5 PG**	**8.5**	**9**
PCB 28*	UG/KG	0.260	--	--	**30 PG**	**35**	**5.5**	**10**	**12**	**14**
PCB 44*	UG/KG	0.240	--	--	**25**	**12**	**3**	**5.3**	**6.6**	**9.3**
PCB 49	UG/KG	0.245	--	--	**20**	**11**	**3.7**	**7.1**	**7.9**	**9.7**
PCB 52*	UG/KG	0.233	--	--	**28**	**13**	**4.3**	**7.8**	**9.6**	**13**
PCB 66*	UG/KG	0.189	--	--	**28 PG**	**15**	**5.6**	**8.3 PG**	**9.5 PG**	**9.4 PG**
PCB 77*	UG/KG	0.252	--	--	**5.1 PG**	**1.6 J PG**	**0.64 PG**	**1.6 J PG**	**1.5 J PG**	0.75 U
PCB 87	UG/KG	0.217	--	--	**14 PG**	**1.6 J PG**	**1.5 PG**	**4.1 PG**	**6.1 PG**	**5.7 PG**
PCB 101*	UG/KG	0.234	--	--	**33**	**9.1**	**5.5**	**15**	**15**	**16**
PCB 105*	UG/KG	0.243	--	--	**13**	**1.6 J**	**1.6**	**5.4**	**5.6**	**3.2 J PG**
PCB 118*	UG/KG	0.238	--	--	**30**	**5.3**	**4.1**	**15**	**14**	**14**
PCB 126*	UG/KG	0.306	--	--	**1.6 J PG**	0.84 U	0.098 U	**1.6 J**	**1.2 J PG**	0.91 U
PCB 128*	UG/KG	0.238	--	--	**6.6 PG**	**0.94 J PG**	**1 PG**	**3.5 PG**	**3.7 PG**	**3.6 PG**
PCB 138*	UG/KG	0.248	--	--	**31**	**5**	**5.4**	**19**	**18**	**18**
PCB 153*	UG/KG	0.241	--	--	**33**	**6.4**	**7.1**	**26**	**20**	**22**
PCB 156	UG/KG	0.234	--	--	**4.1**	0.65 U	**0.72**	**2.4 J**	**2.4 J**	**2.4 J PG**
PCB 169*	UG/KG	0.227	--	--	0.79 U	0.63 U	**0.42 PG**	0.53 U	0.6 U	**0.69 J PG**
PCB 170*	UG/KG	0.240	--	--	**12**	**2.2 J**	**2.8 PG**	**11**	**8.4**	**8.7 PG**
PCB 180*	UG/KG	0.238	--	--	**23**	**4.6**	**5.8**	**22**	**16**	**16**
PCB 183	UG/KG	0.233	--	--	**5.4 PG**	**1 J PG**	**1.1 PG**	**4.8 PG**	**3.5 PG**	**5.3**
PCB 184	UG/KG	0.200	--	--	0.69 U	0.55 U	0.064 U	0.47 U	0.52 U	0.59 U
PCB 187*	UG/KG	0.245	--	--	**14**	**2.8 J**	**3.8**	**15**	**9.7**	**10**
PCB 195	UG/KG	0.234	--	--	**2.6 J**	0.64 U	**0.62**	**3.4**	**2.4 J**	**1.9 J**
PCB 206	UG/KG	0.233	--	--	**4.5**	**1.7 J**	**1.3**	**6.2**	**3.2**	**3.7**
PCB 209	UG/KG	0.248	--	--	**2.8 J**	**2.2 J**	**1.5**	**3.5**	0.65 U	**3.5**
TOTAL PCBs (ND=0)	UG/KG	--	21.55	188.79	**693**	**289**	**125**	**347**	**324**	**340**
TOTAL PCBs (ND=1/2DL)	UG/KG	--	21.55	188.79	**694**	**290**	**125**	**347**	**324**	**341**

*PCB congeners used for Total PCB summation, as per Table 9-3 of the ITM (USEPA/USACE 1998)
***Source*: MacDonald et al. 1996. Ecotoxicology 5: 253-278.

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
TEL = threshold effects level
PEL = probable effects level
J = compound was detected, but below the reporting limit (value is estimated)
PG = the percent difference between the original and confirmation analysis is greater than 40%
U = compound was analyzed but not detected

TABLE A-32. PCB AROCLOR CONCENTRATIONS (UG/KG) IN SEDIMENT FROM WITHIN THE PROPOSED ALIGNMENT

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

		Sample ID	MSN03-JV1	MSN03-JV2	MSN03-JV3	MSN03-JV4	MSN03-JV5
ANALYTE	**UNITS**	**MDL**					
AROCLOR 1016	UG/KG	33.2	37 U	34 U	35 U	32 U	28 U
AROCLOR 1221	UG/KG	16.2	18 U	16 U	17 U	16 U	14 U
AROCLOR 1232	UG/KG	19.8	22 U	20 U	21 U	19 U	17 U
AROCLOR 1242	UG/KG	14.2	16 U	14 U	15 U	14 U	12 U
AROCLOR 1248	UG/KG	15.2	**77**	**190**	**160**	**51**	**100**
AROCLOR 1254	UG/KG	5.56	**150**	**270**	**280**	**93**	4.7 U
AROCLOR 1260	UG/KG	4.66	**180**	**270**	**320**	**120**	**280**

There are no TEL and PEL values for PCB Aroclors

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
U = compound was analyzed but not detected

TABLE A-32. CONTINUED*

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

						KURT IRON	
		Sample ID	M-B7	M-B8	MSNSURF05-1-S	M-B5	M-B6
ANALYTE	**UNITS**	**MDL**					
AROCLOR 1016	UG/KG	33.2	32 U	25 U	29 U	43 U	26 U
AROCLOR 1221	UG/KG	16.2	15 U	12 U	14 U	21 U	13 U
AROCLOR 1232	UG/KG	19.8	19 U	15 U	18 U	25 U	16 U
AROCLOR 1242	UG/KG	14.2	13 U	11 U	12 U	18 U	11 U
AROCLOR 1248	UG/KG	15.2	**340**	**200**	13 U	**86**	**110**
AROCLOR 1254	UG/KG	5.56	**340**	4.2 U	4.9 U	**210**	**170**
AROCLOR 1260	UG/KG	4.66	**220**	**42**	**50**	**190**	**180**

There are no TEL and PEL values for PCB Aroclors

*Wet Basin was not tested for analytes described in table above
NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
U = compound was analyzed but not detected

TABLE A-33. PAH CONCENTRATIONS (UG/KG) IN SEDIMENT FROM WITHIN THE PROPOSED ALIGNMENT

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

				Sample ID	M-B1	M-B2	M-B3	MSN03-JV1	MSN03-JV2	MSN03-JV3	MSN03-JV4	MSN03-JV5
ANALYTE	**UNITS**	**MDL**	**TEL***	**PEL***								
1-METHYLNAPHTHALENE	UG/KG	6.00	--	--	**20 J**	**17 J**	**17 J**	**40**	**40**	**50**	**37**	**43**
2-METHYLNAPHTHALENE	UG/KG	6.86	20.21	201.28	**42**	**34**	**32**	**110**	**89**	**110**	**82**	**89**
ACENAPHTHENE	UG/KG	6.18	6.71	88.9	**25 J**	**18 J**	**25 J**	**40**	**27**	**39**	**34**	**35**
ACENAPHTHYLENE	UG/KG	6.18	5.87	127.87	**83**	**60**	**53**	**98**	**73**	**98**	**92**	**76**
ANTHRACENE	UG/KG	5.06	46.85	245	**110**	**84**	**82**	**260**	**160**	**240**	**160**	**160**
BENZO(A)ANTHRACENE	UG/KG	4.66	74.83	692.53	**240**	**200**	**200**	**620**	**280**	**460**	**260**	**400**
BENZO(A)PYRENE	UG/KG	6.28	88.81	763.22	**410**	**280**	**250**	**650**	**450**	**550**	**330**	**440**
BENZO(B)FLUORANTHENE	UG/KG	3.46	--	--	**360**	**250**	**370**	**760**	**590**	**720**	**590**	**550**
BENZO(GHI)PERYLENE	UG/KG	3.64	--	--	**350**	**270**	**220**	**540**	**420**	**530**	**390**	**470**
BENZO(K)FLUORANTHENE	UG/KG	6.98	--	--	**390**	**260**	3.7 U	**290**	**210**	**250**	5.8 U	**180**
CHRYSENE	UG/KG	4.20	107.77	845.98	**280**	**270**	**250**	**680**	**340**	**490**	**260**	**440**
DIBENZO(A,H)ANTHRACENE	UG/KG	4.20	6.22	134.61	**140**	**92**	**81**	**120**	**92**	**120**	**88**	**99**
FLUORANTHENE	UG/KG	4.06	112.82	1,493.54	**500**	**480**	**390**	**1200**	**770**	**1100**	**500**	**770**
FLUORENE	UG/KG	6.62	21.17	144.35	**41**	**28 J**	**34**	**56**	**46**	**60**	**47**	**55**
INDENO(1,2,3-CD)PYRENE	UG/KG	3.98	--	--	**290**	**210**	**180**	**410**	**310**	**390**	**290**	**350**
NAPHTHALENE	UG/KG	6.96	34.57	390.64	**61**	**49**	**57**	**170**	**150**	**190**	**160**	**100**
PHENANTHRENE	UG/KG	5.34	86.68	543.53	**160**	**150**	**160**	**310**	**240**	**310**	**180**	**320**
PYRENE	UG/KG	3.78	152.66	1,397.60	**440**	**300**	**300**	**1100**	**710**	**800**	**740**	**660**
TOTAL PAHs (ND=0)	UG/KG	--	1,684.06	16,770.40	**3,942**	**3,052**	**2,701**	**7,454**	**4,997**	**6,507**	**4,240**	**5,237**
TOTAL PAHs (ND=1/2DL)	UG/KG	--	1,684.06	16,770.40	**3,942**	**3,052**	**2,701**	**7,454**	**4,997**	**6,507**	**4,240**	**5,237**

**Source* : MacDonald et al. 1996. Ecotoxicology 5: 253-278.

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
TEL = threshold effects level
PEL = probable effects level
U = compound was analyzed but not detected

TABLE A-33. CONTINUED*

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

								KURT IRON	
				Sample ID	M-B7	M-B8	ISNSURF05-1-	M-B5	M-B6
ANALYTE	**UNITS**	**MDL**	**TEL****	**PEL****					
1-METHYLNAPHTHALENE	UG/KG	6.00	--	--	**40**	**27**	**26 J**	**36**	**42**
2-METHYLNAPHTHALENE	UG/KG	6.86	20.21	201.28	**83**	**56**	**47 J**	**71**	**74**
ACENAPHTHENE	UG/KG	6.18	6.71	88.9	**38 J**	**23**	**33 J**	**44**	**47**
ACENAPHTHYLENE	UG/KG	6.18	5.87	127.87	**100**	**51**	**57 J**	**53**	**62**
ANTHRACENE	UG/KG	5.06	46.85	245	**140**	**60**	**87**	**95**	**130**
BENZO(A)ANTHRACENE	UG/KG	4.66	74.83	692.53	**280**	**160**	**280**	**320**	**370**
BENZO(A)PYRENE	UG/KG	6.28	88.81	763.22	**600**	**180**	**340**	**390**	**350**
BENZO(B)FLUORANTHENE	UG/KG	3.46	--	--	**850**	**230**	**470**	**530**	**450**
BENZO(GHI)PERYLENE	UG/KG	3.64	--	--	**440**	**150**	**290**	**410**	**340**
BENZO(K)FLUORANTHENE	UG/KG	6.98	--	--	**290**	**73**	**150**	**160**	**140**
CHRYSENE	UG/KG	4.20	107.77	845.98	**330**	**190**	**370**	**340**	**390**
DIBENZO(A,H)ANTHRACENE	UG/KG	4.20	6.22	134.61	**120**	**37**	**64 J**	**84**	**76**
FLUORANTHENE	UG/KG	4.06	112.82	1,493.54	**430**	**240**	**600**	**390**	**580**
FLUORENE	UG/KG	6.62	21.17	144.35	**52**	**36**	**44 J**	**55**	**93**
INDENO(1,2,3-CD)PYRENE	UG/KG	3.98	--	--	**350**	**120**	**230**	**300**	**250**
NAPHTHALENE	UG/KG	6.96	34.57	390.64	**150**	**44**	**63 J**	**160**	**110**
PHENANTHRENE	UG/KG	5.34	86.68	543.53	**210**	**120**	**230**	**200**	**250**
PYRENE	UG/KG	3.78	152.66	1,397.60	**1100**	**290**	**540**	**620**	**610**
TOTAL PAHs (ND=0)	UG/KG	--	1,684.06	16,770.40	**5,603**	**2,087**	**3,921**	**4,258**	**4,364**
TOTAL PAHs (ND=1/2DL)	UG/KG	--	1,684.06	16,770.40	**5,603**	**2,087**	**3,921**	**4,258**	**4,364**

***Source*: MacDonald et al. 1996. Ecotoxicology 5: 253-278.

*Wet Basin was not tested for analytes described in table above
NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
TEL = threshold effects level
PEL = probable effects level
U = compound was analyzed but not detected

TABLE A-34. CHLORINATED PESTICIDE CONCENTRATIONS (UG/KG) IN SEDIMENT FROM WITHIN THE PROPOSED ALIGNMENT
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

				Sample ID	M-B1	M-B2	M-B3	MSN03-JV1	MSN03-JV2	MSN03-JV3	MSN03-JV4	MSN03-JV5
ANALYTE	**UNITS**	**MDL**	**TEL***	**PEL***								
4,4'-DDD	UG/KG	0.690	1.22	7.81	**4.9 PG**	**4.9**	**7.4**	**17**	**12**	**20**	**23**	**5 PG**
4,4'-DDE	UG/KG	0.404	2.07	374.17	**5.2**	**3.2**	**3.2 PG**	**11 PG**	--	**13**	**11 PG**	**8.1**
4,4'-DDT	UG/KG	0.658	1.19	4.77	**3.2 PG**	**2.8 PG**	**3.7 PG**	0.73 U	0.66 U	0.7 U	0.64 U	0.56 U
ALDRIN	UG/KG	0.404	--	--	0.16 U	0.18 U	0.16 U	0.45 U	0.41 U	**1.5 J PG**	0.39 U	0.34 U
ALPHA-BHC	UG/KG	0.698	--	--	**0.24 J PG**	**0.19 J**	0.12 U	0.78 U	0.7 U	0.74 U	0.68 U	0.59 U
BETA-BHC	UG/KG	0.446	--	--	0.18 U	0.2 U	0.18 U	0.5 U	0.45 U	0.47 U	**2.5 J**	0.38 U
CHLORDANE	UG/KG	12.0	--	--	0.72 U	0.81 U	0.74 U	13 U	12 U	13 U	12 U	10 U
CHLOROBENSIDE	UG/KG	1.72	--	--	0.4 U	0.45 U	0.41 U	1.9 U	1.7 U	1.8 U	1.7 U	1.5 U
DACHTAL	UG/KG	1.13	--	--	0.29 U	**0.45 J**	0.3 U	1.3 U	1.1 U	1.2 U	1.1 U	0.97 U
DELTA-BHC	UG/KG	0.420	--	--	0.11 U	0.13 U	0.11 U	0.47 U	0.42 U	0.44 U	0.41 U	0.36 U
DIELDRIN	UG/KG	0.732	0.715	4.3	**1.1 J PG**	**0.93 J PG**	**1.3 J PG**	**2.1 J PG**	0.73 U	0.78 U	**3.2 J**	**1.9 J PG**
ENDOSULFAN I	UG/KG	0.077	--	--	0.29 U	0.33 U	0.3 U	0.086 U	0.077 U	0.081 U	0.074 U	0.065 U
ENDOSULFAN II	UG/KG	0.416	--	--	**6**	**3.4**	**4.9 PG**	0.47 U	0.42 U	0.44 U	0.4 U	0.35 U
ENDOSULFAN SULFATE	UG/KG	0.414	--	--	0.18 U	0.2 U	0.18 U	0.46 U	0.42 U	0.44 U	0.4 U	0.35 U
ENDRIN	UG/KG	0.694	--	--	**1.5 J PG**	**0.72 J PG**	**2.1 PG**	0.77 U	**8.3 PG**	**7.8 PG**	**6.1**	**6 PG**
ENDRIN ALDEHYDE	UG/KG	0.440	--	--	**2.3 PG**	**2.1 PG**	**1.9 PG**	0.49 U	0.44 U	0.47 U	0.43 U	0.37 U
GAMMA-BHC	UG/KG	0.730	0.32	0.99	0.15 U	0.17 U	0.15 U	0.82 U	0.73 U	0.77 U	0.71 U	0.62 U
HEPTACHLOR	UG/KG	0.804	--	--	0.19 U	0.22 U	0.2 U	0.9 U	0.81 U	0.85 U	0.78 U	0.68 U
HEPTACHLOR EPOXIDE	UG/KG	0.432	--	--	0.13 U	0.14 U	0.13 U	0.48 U	0.43 U	0.46 U	0.42 U	0.37 U
METHOXYCHLOR	UG/KG	1.36	--	--	0.51 U	0.57 U	0.52 U	1.5 U	1.4 U	1.4 U	1.3 U	1.2 U
MIREX	UG/KG	0.576	--	--	0.13 U	0.15 U	0.13 U	0.64 U	0.58 U	0.61 U	0.56 U	0.49 U
TOXAPHENE	UG/KG	72.6	--	--	3.2 U	3.6 U	3.3 U	81 U	73 U	77 U	70 U	62 U

TABLE A-34. CONTINUED

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

								KURT IRON		WET BASIN
					M-B7	M-B8	SNSURF05-1	M-B5	M-B6	WBSURF05-1
ANALYTE	**UNITS**	**MDL**	**TEL***	**PEL***						
4,4'-DDD	UG/KG	0.690	1.22	7.81	**11**	**7**	**1.6 J PG**	**5.2 J PG**	**7.5 PG**	**37**
4,4'-DDE	UG/KG	0.404	2.07	374.17	**10 PG**	**4.4 PG**	1.2 U	**5.6 PG**	**14 PG**	**17 J PG**
4,4'-DDT	UG/KG	0.658	1.19	4.77	**12 PG**	**2.8 J PG**	1 U	**12 PG**	**11 PG**	**14 J PG**
ALDRIN	UG/KG	0.404	--	--	0.51 U	0.4 U	**5.9 J PG**	0.68 U	0.42 U	**6 J PG**
ALPHA-BHC	UG/KG	0.698	--	--	0.35 U	0.27 U	0.8 U	0.46 U	0.29 U	1.5 U
BETA-BHC	UG/KG	0.446	--	--	**5.7 PG**	0.42 U	1.2 U	0.72 U	0.44 U	2.3 U
CHLORDANE	UG/KG	12.0	--	--	3.8 U	3 U	4.3 U	5.1 U	3.2 U	**1,100**
CHLOROBENSIDE	UG/KG	1.72	--	--	1.7 U	1.3 U	3.8 U	2.2 U	1.4 U	7.1 U
DACHTAL	UG/KG	1.13	--	--	1.1 U	0.86 U	2.5 U	1.5 U	0.9 U	4.7 U
DELTA-BHC	UG/KG	0.420	--	--	0.44 U	0.35 U	1 U	0.59 U	0.37 U	1.9 U
DIELDRIN	UG/KG	0.732	0.715	4.3	0.39 U	**1.1 J PG**	0.9 U	**1.5 J PG**	**1.5 J PG**	**3.6 J PG**
ENDOSULFAN I	UG/KG	0.077	--	--	0.39 U	0.31 U	0.91 U	0.53 U	0.33 U	1.7 U
ENDOSULFAN II	UG/KG	0.416	--	--	**9.1 PG**	**1.5 J PG**	1.4 U	**11 PG**	**18**	2.7 U
ENDOSULFAN SULFATE	UG/KG	0.414	--	--	0.55 U	0.44 U	1.3 U	0.74 U	0.46 U	2.4 U
ENDRIN	UG/KG	0.694	--	--	0.4 U	0.32 U	**1.6 J PG**	0.54 U	0.33 U	1.7 U
ENDRIN ALDEHYDE	UG/KG	0.440	--	--	**15**	**3.1 J PG**	2 U	**15**	**12**	3.7 U
GAMMA-BHC	UG/KG	0.730	0.32	0.99	0.34 U	0.27 U	0.79 U	0.46 U	0.28 U	1.5 U
HEPTACHLOR	UG/KG	0.804	--	--	0.39 U	0.31 U	0.9 U	0.52 U	**3 J**	**5.1 J**
HEPTACHLOR EPOXIDE	UG/KG	0.432	--	--	**3.9 J PG**	**1.4 J PG**	1.1 U	**0.97 J PG**	**1.3 J PG**	**5.2 J PG**
METHOXYCHLOR	UG/KG	1.36	--	--	0.89 U	0.7 U	2 U	1.2 U	0.73 U	3.8 U
MIREX	UG/KG	0.576	--	--	0.55 U	0.43 U	**2.7 J PG**	0.74 U	0.45 U	**10 J PG**
TOXAPHENE	UG/KG	72.6	--	--	27 U	21 U	13 U	36 U	22 U	23 U

**Source* : MacDonald et al. 1996. Ecotoxicology 5: 253-278.

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
TEL = threshold effects level
PEL = probable effects level
J = compound was detected, but below the reporting limit (value is estimated)
PG = the percent difference between the original and confirmation analysis is greater than 40%
U = compound was analyzed but not detected

TABLE A-35 ORGANOPHOSPHOURS PESTICIDE CONCENTRATIONS (UG/KG) IN SEDIMENT FROM WITHIN THE PROPOSED ALIGNMENT

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

		Sample ID	M-B1	M-B2	M-B3	MSN03-JV1	MSN03-JV2	MSN03-JV3	MSN03-JV4	MSN03-JV5
ANALYTE	**UNITS**	**MDL***								
AZINPHOS-METHYL	UG/KG	52.8	8.6 U	9.7 U	8.8 U	59 U	53 U	56 U	51 U	45 U
DEMETON (TOTAL)	UG/KG	100.4	16 U	18 U	17 U	110 U	100 U	110 U	97 U	85 U
MALATHION	UG/KG	36.8	6 U	6.7 U	6.1 U	41 U	37 U	39 U	36 U	31 U
METHYL PARATHION	UG/KG	37.6	6.1 U	6.9 U	6.2 U	42 U	38 U	40 U	36 U	32 U
PARATHION	UG/KG	45.6	7.4 U	8.3 U	7.6 U	51 U	46 U	48 U	44 U	39 U

*There are no TEL and PEL values for organophosphorus pesticides

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
U = compound was analyzed but not detected

TABLE A-35. CONTINUED*

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

						KURT IRON	
		Sample ID	M-B7	M-B8	MSNSURF05-1-S	M-B5	M-B6
ANALYTE	**UNITS**	**MDL****					
AZINPHOS-METHYL	UG/KG	52.8	10 U	8 U	47 U	14 U	8.3 U
DEMETON (TOTAL)	UG/KG	100.4	19 U	15 U	88 U	26 U	16 U
MALATHION	UG/KG	36.8	7 U	5.5 U	32 U	9.4 U	5.8 U
METHYL PARATHION	UG/KG	37.6	7.1 U	5.6 U	33 U	9.6 U	5.9 U
PARATHION	UG/KG	45.6	8.7 U	6.9 U	40 U	12 U	7.2 U

*Wet Basin was not tested for analytes described in table above
**There are no TEL and PEL values for organophosphorus pesticides
NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
U = compound was analyzed but not detected

TABLE A-36. DIOXION AND FURAN CONGENER CONCENTRATIONS (PG/G) IN SEDIMENT FROM WITHIN THE PROPOSED ALIGNMENT
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

			Sample ID	M-B1	M-B2	M-B3	MSN03-JV1	MSN03-JV2	MSN03-JV3	MSN03-JV4	MSN03-JV5
ANALYTE	**UNITS**	**RL**	**TEF***								
2,3,7,8-TCDD	PG/G	1.2	1	0.93 U	**6.2**	0.61 U	**1.5 J**	**1.6 J**	1.3 U	1.1 U	1.1 U
1,2,3,7,8-PECDD	PG/G	3.7	0.5	2.5 U	1.4 U	1.5 U	3.4 U	3.6 U	5.1 U	4 U	2.5 U
1,2,3,4,7,8-HXCDD	PG/G	4.5	0.1	3.6 U	2.6 U	2.6 U	3.9 U	5.7 U	5.8 U	4.9 U	2.2 U
1,2,3,6,7,8-HXCDD	PG/G	--	0.1	**17**	**8.4 J**	**12**	**15**	**24**	**27**	**12**	**6 J**
1,2,3,7,8,9-HXCDD	PG/G	4.5	0.1	5.1 U	**5.9 J**	**5.3 J**	**9.3 J**	**14**	**12 J**	**7.5 J**	4.5 U
1,2,3,4,6,7,8-HPCDD	PG/G	--	0.01	**330**	**170**	**260**	**350**	**540**	**610**	**210**	**140**
OCDD	PG/G	--	0.001	**5,000**	**3,700**	**5,000**	**6,600**	**11,000 E**	**12,000 E**	**4,600**	**3,200**
2,3,7,8-TCDF	PG/G	--	0.1	**8.6**	**5**	**3.6**	**6.8**	**7.7**	**8.7 JA**	**2.6**	**2.3**
1,2,3,7,8-PECDF	PG/G	4.3	0.05	5.1 U	3.5 U	2.5 U	5.1 U	**6.5 J**	**9.2 J**	5.7 U	2.1 U
2,3,4,7,8-PECDF	PG/G	1.9	0.5	**8.6 J**	4.6 U	4.2 U	**9 J**	**10 J**	**17**	**8.5 J**	1.9 U
1,2,3,4,7,8-HXCDF	PG/G	4.6	0.1	**18**	**10 J**	**9.2 J**	**13 J**	**17**	**33**	**12 J**	4.6 U
1,2,3,6,7,8-HXCDF	PG/G	2.6	0.1	**7.9 J**	4 U	3.9 U	**8.2 J**	**9.4 J**	**17**	**8 J**	2.6 U
2,3,4,6,7,8-HXCDF	PG/G	2.2	0.1	**6.2 J**	3 U	3 U	**8.9 J**	**8.4 J**	**13 J**	**8.4 J**	2.2 U
1,2,3,7,8,9-HXCDF	PG/G	1.6	0.1	0.75 U	0.56 U	0.43 U	1.1 U	0.94 U	1.4 U	4.1 U	1.2 U
1,2,3,4,6,7,8-HPCDF	PG/G	--	0.01	**100**	**37**	**59**	**150**	**150**	**220**	**87**	**38**
1,2,3,4,7,8,9-HPCDF	PG/G	5.8	0.01	**11**	3.3 U	**5.5 J**	7 U	**13**	**15**	**8.9 J**	4.5 U
OCDF	PG/G	--	0.001	**200**	**77**	**170**	**330**	**410**	**470**	**210**	**100**
DIOXIN TEQ (ND=0)	PG/G	--	--	**15.0**	**11.6**	**6.8**	**17.8**	**23.1**	**29.7**	**12.8**	**2.94**
DIOXIN TEQ (ND=1/2DL)	PG/G	--	--	**17.3**	**14.0**	**9.4**	**19.9**	**25.3**	**33.3**	**16.0**	**6.16**

***** *Source:* USEPA 1989. *1989 Update to the Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-Dioxins and Dibenzofurans (CDDs and CDFs)*

There are no TEL and PEL values for dioxin and furan congeners

NOTE: Shaded and bold values represent detected concentrations.
RL = average reporting limit
TEF = toxicity equivalency factor
TEQ = toxicity equivalency quotient
J = compound was detected, but below the reporting limit (value is estimated)
JA = the analyte was positively identified, but the quantitation is an estimate
U = compound was analyzed but not detected

TABLE A-36. CONTINUED*

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

							KURT IRON	
			Sample ID	M-B7	M-B8	MSNSURF05-1-S	M-B5	M-B6
ANALYTE	UNITS	RL	TEF**					
2,3,7,8-TCDD	PG/G	1.2	1	**1.5 J**	0.74 U	0.89 U	0.43 U	0.66 U
1,2,3,7,8-PECDD	PG/G	3.7	0.5	4.7 U	1.8 U	2.7 U	2.9 U	2.1 U
1,2,3,4,7,8-HXCDD	PG/G	4.5	0.1	**6.2 J**	3.6 U	4.1 U	2.2 U	3.8 U
1,2,3,6,7,8-HXCDD	PG/G	--	0.1	**34**	**13**	**12**	2.2 U	**16**
1,2,3,7,8,9-HXCDD	PG/G	4.5	0.1	**15**	**7.3 J**	**9.3 J**	3.8 U	**7.6 J**
1,2,3,4,6,7,8-HPCDD	PG/G	--	0.01	**630**	**330**	**280**	**240**	**390**
OCDD	PG/G	--	0.001	**12,000 E**	**11,000 E**	**7,400**	**2,600**	**6,600**
2,3,7,8-TCDF	PG/G	--	0.1	**13**	**2.6**	**3.9**	**3.4**	**4.9**
1,2,3,7,8-PECDF	PG/G	4.3	0.05	**7.5 J**	1.4 U	3.4 U	0.75 U	4.1 U
2,3,4,7,8-PECDF	PG/G	1.9	0.5	**14**	2.5 U	**5.9 J**	2.1 U	**10**
1,2,3,4,7,8-HXCDF	PG/G	4.6	0.1	**27**	**5.2 J**	**10 J**	5.2 U	**14**
1,2,3,6,7,8-HXCDF	PG/G	2.6	0.1	**12**	4.3 U	**5.7 J**	3 U	**8.6 J**
2,3,4,6,7,8-HXCDF	PG/G	2.2	0.1	**9.2 J**	2.6 U	4.7 U	3.1 U	**8.7 J**
1,2,3,7,8,9-HXCDF	PG/G	1.6	0.1	0.89 U	0.19 U	1 U	0.61 U	0.75 U
1,2,3,4,6,7,8-HPCDF	PG/G	--	0.01	**190**	**67**	**81**	**98**	**110**
1,2,3,4,7,8,9-HPCDF	PG/G	5.8	0.01	**16**	**4.8 J**	**7.3 J**	3.3 U	**8.7 J**
OCDF	PG/G	--	0.001	**470**	**130**	**200**	**280**	**250**
DIOXIN TEQ (ND=0)	PG/G	--	--	**30.1**	**7.94**	**11.5**	**4.01**	**16.8**
DIOXIN TEQ (ND=1/2DL)	PG/G	--	--	**32.5**	**10.4**	**13.9**	**7.24**	**18.5**

****** Source:* USEPA 1989. *1989 Update to the Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-Dioxins and Dibenzofurans (CDDs and CDFs)*

There are no TEL and PEL values for dioxin and furan congeners

*Wet Basin was not tested for analytes described in table above

NOTE: Shaded and bold values represent detected concentrations.

RL = average reporting limit

TEF = toxicity equivalency factor

TEQ = toxicity equivalency quotient

J = compound was detected, but below the reporting limit (value is estimated)

JA = the analyte was positively identified, but the quantitation is an estimate

U = compound was analyzed but not detected

TABLE A-37. BUTYLTIN CONCENTRATIONS (UG/KG) IN SEDIMENT FROM WITHIN THE PROPOSED ALIGNMENT
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

		Sample ID	M-B1	M-B2	M-B3	MSN03-JV1	MSN03-JV2	MSN03-JV3	MSN03-JV4	MSN03-JV5
ANALYTE	**UNITS**	**RL***								
DIBUTYLTIN	UG/KG	3.3	**7.2 P**	3.1 U	2.6 U	**5.6**	**5.4**	**7.1**	3.3 U	2.7 U
MONOBUTYLTIN	UG/KG	2.54	2 U	2.4 U	2 U	2.6 U	2.6 U	2.8 U	2.6 U	2.1 U
TETRABUTYLTIN	UG/KG	4.34	3.3 U	4 U	3.5 U	4.5 U	4.5 U	4.8 U	4.4 U	3.5 U
TRIBUTYLTIN	UG/KG	3.8	**4.9 P**	3.6 U	3 U	**5.7 P**	**4.1 P**	**8.3**	3.8 U	3.1 U

*There are no TEL and PEL values for butyltins
NOTE: Shaded and bold values represent detected concentrations.
RL = average reporting limit
P = greater than 25% difference for detected concentrations between the two GC columns
U = compound was analyzed but not detected

TABLE A-37. CONTINUED*
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

						KURT IRON	
		Sample ID	M-B7	M-B8	MSNSURF05-1-S	M-B5	M-B6
ANALYTE	**UNITS**	**RL****					
DIBUTYLTIN	UG/KG	3.3	**4.2**	2.8 U	2.9 U	**8.5**	**6.8**
MONOBUTYLTIN	UG/KG	2.54	2.4 U	2.1 U	2.2 U	3.4 U	1.8 U
TETRABUTYLTIN	UG/KG	4.34	4.1 U	3.6 U	3.8 U	5.9 U	3 U
TRIBUTYLTIN	UG/KG	3.8	3.7 U	3.2 U	3.3 U	**9.7**	**8.3 P**

*Wet Basin was not tested for analytes described in table above
**There are no TEL and PEL values for butyltins
NOTE: Shaded and bold values represent detected concentrations.
RL = average reporting limit
P = greater than 25% difference for detected concentrations between the two GC columns
U = compound was analyzed but not detected

TABLE A-38. VOLATILE ORGANIC COMPOUND (VOC) CONCENTRATIONS (UG/KG) IN SEDIMENT FROM WITHIN THE PROPOSED ALIGNMENT

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

		Sample ID	MSN03-JV1	MSN03-JV2	MSN03-JV3	MSN03-JV4	MSN03-JV5
ANALYTE	**UNITS**	**MDL***					
1,1,1-TRICHLOROETHANE	UG/KG	0.834	0.93 U	0.84 U	0.88 U	0.81 U	0.71 U
1,1,2,2-TETRACHLOROETHANE	UG/KG	1.88	2.1 U	1.9 U	2 U	1.8 U	1.6 U
1,1,2-TRICHLOROETHANE	UG/KG	1.20	1.3 U	1.2 U	1.3 U	1.2 U	1 U
1,1-DICHLOROETHANE	UG/KG	1.13	1.3 U	1.1 U	1.2 U	1.1 U	0.95 U
1,1-DICHLOROETHENE	UG/KG	0.888	0.99 U	0.89 U	0.94 U	0.86 U	0.76 U
1,2-DICHLOROBENZENE	UG/KG	1.06	1.2 U	1.1 U	1.1 U	1 U	0.9 U
1,2-DICHLOROETHANE	UG/KG	1.42	1.6 U	1.4 U	1.5 U	1.4 U	1.2 U
1,2-DICHLOROPROPANE	UG/KG	1.30	1.4 U	1.3 U	1.4 U	1.3 U	1.1 U
1,3-DICHLOROBENZENE	UG/KG	1.13	1.3 U	1.1 U	1.2 U	1.1 U	0.97 U
1,4-DICHLOROBENZENE	UG/KG	1.20	1.3 U	1.2 U	1.3 U	1.2 U	1 U
2-BUTANONE (MEK)	UG/KG	2.26	**6.8 J**	2.3 U	**6.9 J**	**6.6 J**	**5.3 J**
2-CHLOROETHYL VINYL ETHER	UG/KG	17.8	20 U	18 U	19 U	17 U	15 U
ACROLEIN	UG/KG	15.2	17 U	15 U	16 U	15 U	13 U
ACRYLONITRILE	UG/KG	9.78	11 U	9.9 U	10 U	9.6 U	8.4 U
BENZENE	UG/KG	1.06	1.2 U	1.1 U	1.1 U	1 U	0.9 U
BROMODICHLOROMETHANE	UG/KG	1.32	1.5 U	1.3 U	1.4 U	1.3 U	1.1 U
BROMOFORM	UG/KG	0.728	0.81 U	0.73 U	0.77 U	0.71 U	0.62 U
BROMOMETHANE	UG/KG	1.20	1.3 U	1.2 U	1.3 U	1.2 U	1 U
CARBON TETRACHLORIDE	UG/KG	1.28	1.4 U	1.3 U	1.4 U	1.2 U	1.1 U
CHLOROETHANE	UG/KG	6.00	6.7 U	6 U	6.4 U	5.8 U	5.1 U
CHLOROFORM	UG/KG	1.62	1.8 U	1.6 U	1.7 U	1.6 U	1.4 U
CHLOROMETHANE	UG/KG	1.01	1.1 U	1 U	1.1 U	0.98 U	0.85 U
CIS-1,3-DICHLOROPROPENE	UG/KG	0.958	1.1 U	0.96 U	1 U	0.92 U	0.81 U
DIBROMOCHLOROMETHANE	UG/KG	1.22	1.4 U	1.2 U	1.3 U	1.2 U	1 U
DICHLORODIFLUOROMETHANE	UG/KG	6.98	7.8 U	7 U	7.4 U	6.8 U	5.9 U
ETHYLBENZENE	UG/KG	0.978	1.1 U	0.99 U	1 U	0.96 U	0.84 U
METHYLENE CHLORIDE	UG/KG	1.98	2.2 U	2 U	2.1 U	1.9 U	1.7 U
TETRACHLOROETHENE	UG/KG	0.740	0.83 U	0.74 U	0.78 U	0.72 U	0.63 U
TOLUENE	UG/KG	1.22	1.4 U	1.2 U	1.3 U	1.2 U	1 U
TRANS-1,2-DICHLOROETHENE	UG/KG	0.926	1 U	0.94 U	0.99 U	0.91 U	0.79 U
TRANS-1,3-DICHLOROPROPENE	UG/KG	1.13	1.3 U	1.1 U	1.2 U	1.1 U	0.95 U
TRICHLOROETHENE	UG/KG	1.36	1.5 U	1.4 U	1.4 U	1.3 U	1.2 U
TRICHLOROFLUOROMETHANE	UG/KG	7.80	8.7 U	7.8 U	8.3 U	7.6 U	6.6 U
VINYL CHLORIDE	UG/KG	1.42	1.6 U	1.4 U	1.5 U	1.4 U	1.2 U

*There are no TEL and PEL values for volatiles

NOTE: Shaded and bold values represent detected concentrations.

MDL = average method detection limit

B = compound was detected in method blank

J = compound was detected, but below the reporting limit (value is estimated)

U = compound was analyzed but not detected

TABLE A-38. CONTINUED

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

						KURT IRON		WET BASIN
		Sample ID	M-B7	M-B8	MSNSURF05-1-S	M-B5	M-B6	WBSURF05-1
ANALYTE	UNITS	MDL*						
1,1,1-TRICHLOROETHANE	UG/KG	0.834	0.65 U	0.52 U	0.6 U	0.88 U	0.49 U	1.1 U
1,1,2,2-TETRACHLOROETHANE	UG/KG	1.88	1.1 U	0.86 U	1 U	1.5 U	0.82 U	1.9 U
1,1,2-TRICHLOROETHANE	UG/KG	1.20	1.6 U	1.3 U	1.5 U	2.2 U	1.2 U	2.8 U
1,1-DICHLOROETHANE	UG/KG	1.13	0.69 U	0.55 U	0.64 U	0.93 U	0.52 U	1.2 U
1,1-DICHLOROETHENE	UG/KG	0.888	1.4 U	1.1 U	1.3 U	1.9 U	1.1 U	2.4 U
1,2-DICHLOROBENZENE	UG/KG	1.06	2.2 U	1.8 U	2.1 U	3 U	1.7 U	3.8 U
1,2-DICHLOROETHANE	UG/KG	1.42	0.73 U	0.58 U	0.67 U	0.98 U	0.55 U	1.2 U
1,2-DICHLOROPROPANE	UG/KG	1.30	1.5 U	1.2 U	1.4 U	2 U	1.1 U	2.6 U
1,3-DICHLOROBENZENE	UG/KG	1.13	2.2 U	1.7 U	2 U	2.9 U	1.7 U	3.8 U
1,4-DICHLOROBENZENE	UG/KG	1.20	1.6 U	1.3 U	1.5 U	2.2 U	1.2 U	2.8 U
2-BUTANONE (MEK)	UG/KG	2.26	3.4 U	2.7 U	3.1 U	4.5 U	2.5 U	5.8 U
2-CHLOROETHYL VINYL ETHER	UG/KG	17.8	22 U	17 U	20 U	30 U	17 U	38 U
ACROLEIN	UG/KG	15.2	230 U	180 U	210 U	310 U	170 U	390 U
ACRYLONITRILE	UG/KG	9.78	64 U	51 U	59 U	86 U	48 U	110 U
BENZENE	UG/KG	1.06	1.3 U	1 U	1.2 U	1.8 U	0.99 U	2.3 U
BROMODICHLOROMETHANE	UG/KG	1.32	0.6 U	0.48 U	0.56 U	0.81 U	0.45 U	1 U
BROMOFORM	UG/KG	0.728	1.5 U	1.2 U	1.4 U	2 U	1.1 U	2.5 U
BROMOMETHANE	UG/KG	1.20	2.2 U	1.8 U	2.1 U	3 U	1.7 U	3.8 U
CARBON TETRACHLORIDE	UG/KG	1.28	0.6 U	0.48 U	0.56 U	0.81 U	0.45 U	1 U
CHLOROETHANE	UG/KG	6.00	2.3 U	1.8 U	2.1 U	3 U	1.7 U	3.9 U
CHLOROFORM	UG/KG	1.62	0.6 U	0.48 U	0.56 U	0.81 U	0.45 U	1 U
CHLOROMETHANE	UG/KG	1.01	0.69 U	0.55 U	0.64 U	0.93 U	0.52 U	1.2 U
CIS-1,3-DICHLOROPROPENE	UG/KG	0.958	0.69 U	0.55 U	0.64 U	0.93 U	0.52 U	1.2 U
DIBROMOCHLOROMETHANE	UG/KG	1.22	0.63 U	0.5 U	0.58 U	0.84 U	0.47 U	1.1 U
DICHLORODIFLUOROMETHANE	UG/KG	6.98	1.2 U	0.96 U	1.1 U	1.6 U	0.92 U	2.1 U
ETHYLBENZENE	UG/KG	0.978	2.2 U	1.8 U	2.1 U	3 U	1.7 U	3.8 U
METHYLENE CHLORIDE	UG/KG	1.98	3.2 U	**4.7 J**	**3.4 J B**	4.3 U	**6.8 J**	**6.4 J B**
TETRACHLOROETHENE	UG/KG	0.740	1.8 U	1.5 U	1.7 U	2.5 U	1.4 U	3.2 U
TOLUENE	UG/KG	1.22	1.4 U	1.1 U	1.3 U	1.9 U	1.1 U	2.4 U
TRANS-1,2-DICHLOROETHENE	UG/KG	0.926	1.6 U	1.2 U	1.5 U	2.1 U	1.2 U	2.7 U
TRANS-1,3-DICHLOROPROPENE	UG/KG	1.13	0.67 U	0.52 U	0.61 U	0.89 U	0.5 U	1.1 U
TRICHLOROETHENE	UG/KG	1.36	2.1 U	1.6 U	1.9 U	2.8 U	1.6 U	3.6 U
TRICHLOROFLUOROMETHANE	UG/KG	7.80	2.9 U	2.3 U	2.7 U	3.9 U	2.2 U	5 U
VINYL CHLORIDE	UG/KG	1.42	1.6 U	1.3 U	1.5 U	2.1 U	1.2 U	2.7 U

*There are no TEL and PEL values for volatiles

NOTE: Shaded and bold values represent detected concentrations.

MDL = average method detection limit

B = compound was detected in method blank

J = compound was detected, but below the reporting limit (value is estimated)

U = compound was analyzed but not detected

TABLE A-39. SEMIVOLATILE ORGANIC COMPOUND (SVOC) CONCENTRATIONS (UG/KG) IN SEDIMENT FROM WITHIN THE PROPOSED ALIGNMENT
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

				Sample ID	M-B1	M-B2	M-B3	MSN03-JV1	MSN03-JV2	MSN03-JV3	MSN03-JV4	MSN03-JV5
ANALYTE	**UNITS**	**MDL**	**TEL***	**PEL***								
1,2,4-TRICHLOROBENZENE	UG/KG	55.6	--	--	140 U	400 U	360 U	62 U	56 U	59 U	54 U	47 U
1,2-DIPHENYLHYDRAZINE	UG/KG	73.8	--	--	120 U	330 U	300 U	82 U	74 U	78 U	72 U	63 U
2,2'-OXYBIS(1-CHLOROPROPANE)	UG/KG	48.2	--	--	220 U	620 U	560 U	54 U	48 U	51 U	47 U	41 U
2,4,6-TRICHLOROPHENOL	UG/KG	69.8	--	--	95 U	270 U	240 U	78 U	70 U	74 U	68 U	59 U
2,4-DICHLOROPHENOL	UG/KG	66.4	--	--	140 U	400 U	360 U	74 U	67 U	71 U	64 U	56 U
2,4-DIMETHYLPHENOL	UG/KG	110.4	--	--	120 U	330 U	300 U	120 U	110 U	120 U	110 U	92 U
2,4-DINITROPHENOL	UG/KG	100.4	--	--	2100 U	5800 U	5200 U	110 U	100 U	110 U	97 U	85 U
2,4-DINITROTOLUENE	UG/KG	115.4	--	--	120 U	340 U	310 U	130 U	120 U	120 U	110 U	97 U
2,6-DINITROTOLUENE	UG/KG	91.2	--	--	100 U	280 U	260 U	100 U	92 U	97 U	89 U	78 U
2-CHLORONAPHTHALENE	UG/KG	51.8	--	--	120 U	340 U	310 U	58 U	52 U	55 U	50 U	44 U
2-CHLOROPHENOL	UG/KG	62	--	--	230 U	660 U	600 U	69 U	62 U	66 U	60 U	53 U
2-METHYLPHENOL	UG/KG	80.2	--	--	200 U	560 U	510 U	90 U	80 U	85 U	78 U	68 U
2-NITROPHENOL	UG/KG	50.8	--	--	190 U	520 U	470 U	57 U	51 U	54 U	49 U	43 U
3,3'-DICHLOROBENZIDINE	UG/KG	68	--	--	81 U	230 U	210 U	76 U	68 U	72 U	66 U	58 U
4,6-DINITRO-2-METHYLPHENOL	UG/KG	120	--	--	87 U	250 U	220 U	130 U	120 U	130 U	120 U	100 U
4-BROMOPHENYL PHENYL ETHER	UG/KG	91.4	--	--	110 U	320 U	290 U	100 U	92 U	98 U	89 U	78 U
4-CHLORO-3-METHYLPHENOL	UG/KG	72.8	--	--	120 U	330 U	290 U	81 U	73 U	77 U	71 U	62 U
4-CHLOROPHENYL PHENYL ETHER	UG/KG	84.4	--	--	94 U	260 U	240 U	94 U	85 U	89 U	82 U	72 U
4-METHYLPHENOL	UG/KG	103.6	--	--	310 U	860 U	780 U	120 U	100 U	110 U	100 U	88 U
4-NITROPHENOL	UG/KG	144	--	--	94 U	260 U	240 U	160 U	150 U	150 U	140 U	120 U
BENZOIC ACID	UG/KG	42.2	--	--	160 U	440 U	400 U	47 U	**750 J**	45 U	41 U	36 U
BENZYL ALCOHOL	UG/KG	100.4	--	--	400 U	1100 U	1000 U	110 U	100 U	110 U	97 U	85 U
BIS(2-CHLOROETHOXY)METHANE	UG/KG	45.2	--	--	150 U	430 U	390 U	51 U	45 U	48 U	44 U	38 U
BIS(2-CHLOROETHYL) ETHER	UG/KG	48.2	--	--	160 U	440 U	400 U	54 U	48 U	51 U	47 U	41 U
BIS(2-ETHYLHEXYL) PHTHALATE	UG/KG	97.4	182.16	2646.51	**500 J**	370 U	340 U	**140 J**	**760 J**	**720 J**	95 U	**240 J**
BUTYL BENZYL PHTHALATE	UG/KG	101	--	--	150 U	410 U	370 U	110 U	100 U	110 U	99 U	86 U
DI-N-BUTYL PHTHALATE	UG/KG	110.4	--	--	120 U	340 U	310 U	120 U	110 U	120 U	110 U	92 U
DI-N-OCTYL PHTHALATE	UG/KG	106.4	--	--	120 U	330 U	300 U	120 U	110 U	110 U	100 U	92 U
DIBENZOFURAN	UG/KG	77.6	--	--	130 U	360 U	330 U	87 U	78 U	82 U	75 U	66 U
DIETHYL PHTHALATE	UG/KG	113.4	--	--	130 U	350 U	320 U	130 U	110 U	120 U	110 U	97 U
DIMETHYL PHTHALATE	UG/KG	97.2	--	--	110 U	310 U	280 U	110 U	98 U	100 U	95 U	83 U
HEXACHLOROBENZENE	UG/KG	89.6	--	--	110 U	310 U	280 U	100 U	90 U	95 U	87 U	76 U
HEXACHLOROBUTADIENE	UG/KG	58.6	--	--	190 U	530 U	480 U	65 U	59 U	62 U	57 U	50 U
HEXACHLOROCYCLOPENTADIENE	UG/KG	64	--	--	92 U	260 U	230 U	72 U	64 U	68 U	62 U	54 U
HEXACHLOROETHANE	UG/KG	50.8	--	--	190 U	530 U	480 U	57 U	51 U	54 U	49 U	43 U
ISOPHORONE	UG/KG	46.2	--	--	180 U	500 U	450 U	52 U	46 U	49 U	45 U	39 U
N-NITROSODI-N-PROPYLAMINE	UG/KG	55.4	--	--	140 U	380 U	350 U	62 U	55 U	59 U	54 U	47 U
N-NITROSODIMETHYLAMINE	UG/KG	54.4	--	--	180 U	510 U	460 U	61 U	54 U	58 U	53 U	46 U
N-NITROSODIPHENYLAMINE	UG/KG	87.8	--	--	150 U	430 U	390 U	98 U	88 U	93 U	85 U	75 U
NITROBENZENE	UG/KG	47.4	--	--	170 U	480 U	430 U	53 U	48 U	50 U	46 U	40 U
PENTACHLOROPHENOL	UG/KG	100.4	--	--	93 U	260 U	240 U	110 U	100 U	110 U	97 U	85 U
PHENOL	UG/KG	49.8	--	--	150 U	420 U	380 U	56 U	**79 J**	53 U	48 U	42 U

**Source*: MacDonald et al. 1996. Ecotoxicology 5: 253-278.

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
TEL = threshold effects level
PEL = probable effects level
J = compound was detected, but below the reporting limit (value is estimated)
U = compound was analyzed but not detected

TABLE A-39. CONTINUED

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

								KURT IRON		WET BASIN
				Sample ID	M-B7	M-B8	MSNSURF05-1-S	M-B5	M-B6	WBSURF05-01
ANALYTE	UNITS	MDL	TEL*	PEL*						
1,2,4-TRICHLOROBENZENE	UG/KG	55.6	--	--	33 U	13 U	38 U	44 U	27 U	70 U
1,2-DIPHENYLHYDRAZINE	UG/KG	73.8	--	--	37 U	15 U	43 U	50 U	31 U	79 U
2,2'-OXYBIS(1-CHLOROPROPANE)	UG/KG	48.2	--	--	23 U	9.2 U	27 U	31 U	19 U	50 U
2,4,6-TRICHLOROPHENOL	UG/KG	69.8	--	--	28 U	11 U	32 U	37 U	23 U	59 U
2,4-DICHLOROPHENOL	UG/KG	66.4	--	--	30 U	12 U	35 U	41 U	25 U	65 U
2,4-DIMETHYLPHENOL	UG/KG	110.4	--	--	26 U	10 U	30 U	35 U	21 U	55 U
2,4-DINITROPHENOL	UG/KG	100.4	--	--	4000 U	1600 U	4600 U	5,400 U	3,300 U	8,600 U
2,4-DINITROTOLUENE	UG/KG	115.4	--	--	17 U	6.6 U	19 U	23 U	14 U	36 U
2,6-DINITROTOLUENE	UG/KG	91.2	--	--	23 U	9 U	26 U	31 U	19 U	49 U
2-CHLORONAPHTHALENE	UG/KG	51.8	--	--	34 U	13 U	39 U	46 U	28 U	73 U
2-CHLOROPHENOL	UG/KG	62	--	--	25 U	10 U	29 U	34 U	21 U	54 U
2-METHYLPHENOL	UG/KG	80.2	--	--	36 U	14 U	41 U	48 U	30 U	77 U
2-NITROPHENOL	UG/KG	50.8	--	--	29 U	11 U	33 U	39 U	24 U	62 U
3,3'-DICHLOROBENZIDINE	UG/KG	68	--	--	40 U	16 U	46 U	53 U	33 U	85 U
4,6-DINITRO-2-METHYLPHENOL	UG/KG	120	--	--	4000 U	1600 U	4600 U	5,400 U	3,300 U	8,600 U
4-BROMOPHENYL PHENYL ETHER	UG/KG	91.4	--	--	80 U	32 U	93 U	110 U	66 U	170 U
4-CHLORO-3-METHYLPHENOL	UG/KG	72.8	--	--	35 U	14 U	40 U	47 U	29 U	75 U
4-CHLOROPHENYL PHENYL ETHER	UG/KG	84.4	--	--	33 U	13 U	38 U	44 U	27 U	70 U
4-METHYLPHENOL	UG/KG	103.6	--	--	**65 J**	**100 J**	42 U	48 U	**42 J**	77 U
4-NITROPHENOL	UG/KG	144	--	--	22 U	8.5 U	25 U	29 U	18 U	46 U
BENZOIC ACID	UG/KG	42.2	--	--	1300 U	530 U	1500 U	1800 U	1100 U	2,900 U
BENZYL ALCOHOL	UG/KG	100.4	--	--	180 U	72 U	210 U	240 U	150 U	390 U
BIS(2-CHLOROETHOXY)METHANE	UG/KG	45.2	--	--	36 U	14 U	42 U	48 U	30 U	77 U
BIS(2-CHLOROETHYL) ETHER	UG/KG	48.2	--	--	31 U	12 U	36 U	42 U	26 U	67 U
BIS(2-ETHYLHEXYL) PHTHALATE	UG/KG	97.4	182.16	2646.51	**770 J**	**170 J**	**430 J**	**350 J**	**440 J**	**830 J**
BUTYL BENZYL PHTHALATE	UG/KG	101	--	--	36 U	14 U	41 U	48 U	29 U	76 U
DI-N-BUTYL PHTHALATE	UG/KG	110.4	--	--	200 U	**97 J**	230 U	260 U	160 U	420 U
DI-N-OCTYL PHTHALATE	UG/KG	106.4	--	--	37 U	15 U	43 U	50 U	31 U	79 U
DIBENZOFURAN	UG/KG	77.6	--	--	**53 J**	**26 J**	42 U	**51 J**	**61 J**	**250 J**
DIETHYL PHTHALATE	UG/KG	113.4	--	--	32 U	**34 J**	37 U	43 U	27 U	69 U
DIMETHYL PHTHALATE	UG/KG	97.2	--	--	34 U	13 U	39 U	45 U	28 U	72 U
HEXACHLOROBENZENE	UG/KG	89.6	--	--	32 U	13 U	37 U	43 U	27 U	69 U
HEXACHLOROBUTADIENE	UG/KG	58.6	--	--	31 U	12 U	36 U	42 U	26 U	67 U
HEXACHLOROCYCLOPENTADIENE	UG/KG	64	--	--	130 U	51 U	150 U	170 U	110 U	280 U
HEXACHLOROETHANE	UG/KG	50.8	--	--	31 U	12 U	36 U	41 U	25 U	66 U
ISOPHORONE	UG/KG	46.2	--	--	31 U	12 U	35 U	41 U	25 U	66 U
N-NITROSODI-N-PROPYLAMINE	UG/KG	55.4	--	--	33 U	13 U	38 U	44 U	27 U	70 U
N-NITROSODIMETHYLAMINE	UG/KG	54.4	--	--	400 U	160 U	460 U	540 U	330 U	860 U
N-NITROSODIPHENYLAMINE	UG/KG	87.8	--	--	330 U	130 U	380 U	450 U	280 U	710 U
NITROBENZENE	UG/KG	47.4	--	--	52 U	21 U	60 U	70 U	43 U	110 U
PENTACHLOROPHENOL	UG/KG	100.4	--	--	2200 U	870 U	2500 U	3,000 U	1,800 U	4,700 U
PHENOL	UG/KG	49.8	--	--	33 U	13 U	38 U	44 U	27 U	71 U

**Source*: MacDonald et al. 1996. Ecotoxicology 5: 253-278.

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
TEL = threshold effects level
PEL = probable effects level
J = compound was detected, but below the reporting limit (value is estimated)
U = compound was analyzed but not detected

TABLE A-40. PHYSICAL PARAMETERS OF SEDIMENT FROM MASONVILLE COVE

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

		MASONVILLE COVE			
	Sample ID	**M-B4**	**MSNSURF05-2-S**	**MSNSURF05-3-S**	**MSNSURF05-4-S**
ANALYTE	**UNITS**				
GRAVEL	%	0	0	0	0
SAND	%	7.5	1.5	2	20.3
SILT	%	70.9	79.2	75	66.1
CLAY	%	21.6	19.4	23	13.6
SILT+CLAY	%	92.5	98.6	98	79.7
LIQUID LIMIT	--	--	79	78	57
PLASTIC LIMIT	--	--	49	49	37
PLASTICITY INDEX	--	--	30	29	19
MOISTURE CONTENT	%	207.1	--	--	--
PERCENT SOLIDS	%	--	31.7	30.3	42.8
SPECIFIC GRAVITY	--	2.59	2.70	2.70	2.64

TABLE A-41. GENERAL CHEMISTRY CONCENTRATIONS IN SEDIMENT FROM MASONVILLE COVE
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

			MASONVILLE COVE		
		Sample ID	MSNSURF05-2-S	MSNSURF05-3-S	MSNSURF05-4-S
ANALYTE	UNITS	MDL			
TOTAL ORGANIC CARBON	%	0.13	**3.34**	**3.12**	**3.21**
AMMONIA NITROGEN	MG/KG	6.16	NA	NA	NA
NITRATE-NITRITE	MG/KG	0.68	**9.9**	**1.5 B**	**0.85 B**
TOTAL KJELDAHL NITROGEN	MG/KG	121.6	**2,740**	**2,960**	**2,100**
BIOCHEMICAL OXYGEN DEMAND	MG/KG	303.4	**3,290**	**2,900**	**2,710**
CHEMICAL OXYGEN DEMAND	MG/KG	25.28	**2,090**	**603**	**374**
ASBESTOS	%	NA	ND	ND	ND
CYANIDE, TOTAL	MG/KG	0.436	0.68 U	**0.84 B**	0.51 U
OIL & GREASE	MG/KG	195.2	244 U	255 U	181 U
pH	--	--	NA	NA	NA
TOTAL PHOSPHORUS	MG/KG	58.14	**663**	**556**	**556**
TOTAL SULFIDE	MG/KG	2.52	**1,490**	**423**	**1,250**
ACID VOLATILE SULFIDE	UMOLE/G	1.26	**37.4**	**6.9**	**29.8**

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
NA = constituent was not analyzed for this sample
ND = not detected
B (inorganic) **=** compound was detected, but below reporting limit (value is estimated).
J (inorganic) = compound was detected in method blank
U = compound was analyzed but not detected

TABLE A-42. METAL CONCENTRATIONS (MG/KG) IN SEDIMENT FROM MASONVILLE COVE
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

				Sample ID	MASONVILLE COVE		
					MSNSURF05-2-S	MSNSURF05-3-S	MSNSURF05-4-S
ANALYTE	**UNITS**	**MDL**	**TEL***	**PEL***			
ALUMINUM	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	MG/KG	0.402	--	--	0.5 N U	0.53 N U	0.37 N U
ARSENIC	MG/KG	0.302	7.24	41.6	**14.3**	**15.8**	**0.375**
BARIUM	MG/KG	--	--	--	--	--	--
BERYLLIUM	MG/KG	0.036	--	--	**1.8**	**1.9**	**1.1**
CADMIUM	MG/KG	0.050	0.676	4.21	**1.5**	**1.8**	**1.3**
CALCIUM	MG/KG	--	--	--	--	--	--
CHROMIUM	MG/KG	0.079	52.3	160.4	**94.7 E**	**109 E**	**62.6 E**
HEXAVALENT CHROMIUM	NA	NA	NA	NA	NA	NA	NA
COBALT	NA	NA	NA	NA	NA	NA	NA
COPPER	MG/KG	0.136	18.7	108.2	**145 E**	**179 E**	**217 E**
IRON	MG/KG	2.16	--	--	--	--	--
LEAD	MG/KG	0.330	30.24	112.18	**110 E**	**140 E**	**128 E**
MAGNESIUM	MG/KG	--	--	--	--	--	--
MANGANESE	NA	NA	NA	NA	NA	NA	NA
MERCURY	MG/KG	0.005	0.13	0.696	**0.31**	**0.41**	**0.35**
NICKEL	MG/KG	0.106	15.9	42.8	**43.6 E**	**47.4 E**	**46.2 E**
SELENIUM	MG/KG	0.292	--	--	**2.7**	**2.5**	**1.6**
SILVER	MG/KG	0.073	0.73	1.77	**0.52 B**	**0.74 B**	**0.46 B**
THALLIUM	MG/KG	0.500	--	--	**1.2 B**	**0.79 B**	**0.54 B**
TIN	NA	NA	NA	NA	NA	NA	NA
ZINC	MG/KG	0.158	124	271	**308 E**	**360 E**	**314 E**
RATIO OF SEM/AVS	--	--	--	--	0.2	0.9	0.23

**Source* : MacDonald et al. 1996. Ecotoxicology 5: 253-278.

NA = constituent was not analyzed for this sample

NOTE: Shaded and bold values represent detected concentrations.

MDL = average method detection limit

TEL = threshold effects level

PEL = probable effects level

B (inorganic) **=** compound was detected, but below reporting limit (value is estimated).

E = reported value is estimated because of the presence of interference

J (inorganic) **=** compound was detected in method blank

N = spiked sample recovery is not within control limits

U = compound was analyzed but not detected

NA = compound was not analyzed

TABLE A-43. PCB CONGENER CONCENTRATIONS (UG/KG) IN SEDIMENT FROM MASONVILLE COVE
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

					MASONVILLE COVE		
				Sample ID	MSNSURF05-2-S	MSNSURF05-3-S	MSNSURF05-4-S
ANALYTE	UNITS	MDL	TEL*	PEL*			
PCB 8*	UG/KG	0.241	--	--	**0.72 PG**	**1.5 PG**	**0.81 J PG**
PCB 18*	UG/KG	0.160	--	--	**1.9 PG**	**2.1 PG**	**5.1**
PCB 28*	UG/KG	0.260	--	--	**4.6 PG**	0.12 U	0.44 U
PCB 44*	UG/KG	0.240	--	--	**3.2**	0.11 U	**6.5**
PCB 49	UG/KG	0.245	--	--	**2.3 PG**	0.12 U	**9.1**
PCB 52*	UG/KG	0.233	--	--	**3.4 PG**	0.11 U	**7.6 PG**
PCB 66*	UG/KG	0.189	--	--	**3.7 PG**	**4.3 PG**	**10 PG**
PCB 77*	UG/KG	0.252	--	--	**1.5 PG**	0.12 U	0.43 U
PCB 87	UG/KG	0.217	--	--	**2 PG**	**1.7 PG**	**5.1 PG**
PCB 101*	UG/KG	0.234	--	--	**5.9**	0.11 U	**11**
PCB 105*	UG/KG	0.243	--	--	**2.2**	0.12 U	**4.6**
PCB 118*	UG/KG	0.238	--	--	**5.2**	**6.9**	**11**
PCB 126*	UG/KG	0.306	--	--	0.14 U	0.14 U	0.51 U
PCB 128*	UG/KG	0.238	--	--	**1.3 PG**	**2.1 PG**	**3 PG**
PCB 138*	UG/KG	0.248	--	--	**6.8**	**6.6 PG**	**14**
PCB 153*	UG/KG	0.241	--	--	**8.7**	**8.2 PG**	**17**
PCB 156	UG/KG	0.234	--	--	**0.82 PG**	**1.8**	**2.1**
PCB 169*	UG/KG	0.227	--	--	**1.8 PG**	**0.94 PG**	**7.7 PG**
PCB 170*	UG/KG	0.240	--	--	**3.2 PG**	**3.7 PG**	**5.9 PG**
PCB 180*	UG/KG	0.238	--	--	**6.4**	**8.6**	**12**
PCB 183	UG/KG	0.233	--	--	**1.3 PG**	**1.3 PG**	**2.9 PG**
PCB 184	UG/KG	0.200	--	--	0.091 U	0.095 U	0.34 U
PCB 187*	UG/KG	0.245	--	--	**4.4**	**4.6**	**7.7**
PCB 195	UG/KG	0.234	--	--	**0.81**	**0.64 PG**	**1.3 J**
PCB 206	UG/KG	0.233	--	--	**2.8**	**2.7**	**5.5**
PCB 209	UG/KG	0.248	--	--	**2**	**2.2**	**2.4**
TOTAL PCBs (ND=0)	UG/KG	--	21.55	188.79	**130**	**99.1**	**248**
TOTAL PCBs (ND=1/2DL)	UG/KG	--	21.55	188.79	**130**	**99.9**	**249**

*PCB congeners used for Total PCB summation, as per Table 9-3 of the ITM (USEPA/USACE 1998)
***Source*: MacDonald et al. 1996. Ecotoxicology 5: 253-278.

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
TEL = threshold effects level
PEL = probable effects level
J = compound was detected, but below the reporting limit (value is estimated)
PG = the percent difference between the original and confirmation analysis is greater than 40%
U = compound was analyzed but not detected

TABLE A-44. PCB AROCLOR CONCENTRATIONS (UG/KG) IN SEDIMENT FROM MASONVILLE COVE

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

			MASONVILLE COVE		
		Sample ID	MSNSURF05-2-S	MSNSURF05-3-S	MSNSURF05-4-S
ANALYTE	UNITS	MDL			
AROCLOR 1016	UG/KG	33.2	42 U	44 U	31 U
AROCLOR 1221	UG/KG	16.2	20 U	21 U	15 U
AROCLOR 1232	UG/KG	19.8	25 U	26 U	18 U
AROCLOR 1242	UG/KG	14.2	18 U	18 U	13 U
AROCLOR 1248	UG/KG	15.2	19 U	20 U	14 U
AROCLOR 1254	UG/KG	5.56	7 U	7.3 U	5.2 U
AROCLOR 1260	UG/KG	4.66	**82**	**88**	4.3 U

There are no TEL and PEL values for PCB Aroclors

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
U = compound was analyzed but not detected

TABLE A-45. PAH CONCENTRATIONS (UG/KG) IN SEDIMENT FROM MASONVILLE COVE
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

					MASONVILLE COVE		
				Sample ID	MSNSURF05-2-S	MSNSURF05-3-S	MSNSURF05-4-S
ANALYTE	**UNITS**	**MDL**	**TEL***	**PEL***			
1-METHYLNAPHTHALENE	UG/KG	6.00	--	--	**32 J**	34 U	**68 J**
2-METHYLNAPHTHALENE	UG/KG	6.86	20.21	201.28	**59 J**	**63 J**	**98**
ACENAPHTHENE	UG/KG	6.18	6.71	88.9	33 U	35 U	**99**
ACENAPHTHYLENE	UG/KG	6.18	5.87	127.87	**65 J**	**73 J**	**140**
ANTHRACENE	UG/KG	5.06	46.85	245	**110**	**110**	**270**
BENZO(A)ANTHRACENE	UG/KG	4.66	74.83	692.53	**290**	**270**	**850**
BENZO(A)PYRENE	UG/KG	6.28	88.81	763.22	**370**	**390**	**1,000**
BENZO(B)FLUORANTHENE	UG/KG	3.46	--	--	**560**	**570**	**1,500**
BENZO(GHI)PERYLENE	UG/KG	3.64	--	--	**350**	**370**	**870**
BENZO(K)FLUORANTHENE	UG/KG	6.98	--	--	**210**	**230**	**510**
CHRYSENE	UG/KG	4.20	107.77	845.98	**420**	**370**	**1,200**
DIBENZO(A,H)ANTHRACENE	UG/KG	4.20	6.22	134.61	**75 J**	**81 J**	**200**
FLUORANTHENE	UG/KG	4.06	112.82	1,493.54	**850**	**610**	**2,600**
FLUORENE	UG/KG	6.62	21.17	144.35	**52 J**	**52 J**	**130**
INDENO(1,2,3-CD)PYRENE	UG/KG	3.98	--	--	**290**	**300**	**710**
NAPHTHALENE	UG/KG	6.96	34.57	390.64	**76 J**	**82 J**	**140**
PHENANTHRENE	UG/KG	5.34	86.68	543.53	**210**	**200**	**700**
PYRENE	UG/KG	3.78	152.66	1397.6	**710**	**650**	**2,000**
TOTAL PAHs (ND=0)	UG/KG	--	1,684.06	16,770.40	**4,729**	**4,421**	**13,085**
TOTAL PAHs (ND=1/2DL)	UG/KG	--	1,684.06	16,770.40	**4,745**	**4,455**	**13,085**

**Source* : MacDonald et al. 1996. Ecotoxicology 5: 253-278.

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
TEL = threshold effects level
PEL = probable effects level
U = compound was analyzed but not detected

TABLE A-46. CHLORINATED PESTICIDE CONCENTRATIONS (UG/KG) IN SEDIMENT FROM MASONVILLE COVE
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

					MASONVILLE COVE		
				Sample ID	MSNSURF05-2-S	MSNSURF05-3-S	MSNSURF05-4-S
ANALYTE	UNITS	MDL	TEL*	PEL*			
4,4'-DDD	UG/KG	0.690	1.22	7.81	**7.4 J**	**8.3 J**	**3.9 J PG**
4,4'-DDE	UG/KG	0.404	2.07	374.17	**3.7 J PG**	**3.4 J PG**	**5.7 J**
4,4'-DDT	UG/KG	0.658	1.19	4.77	**6.2 J PG**	1.5 U	1.1 U
ALDRIN	UG/KG	0.404	--	--	**3.3 J PG**	**5.1 J PG**	1.2 U
ALPHA-BHC	UG/KG	0.698	--	--	1.1 U	1.2 U	0.84 U
BETA-BHC	UG/KG	0.446	--	--	1.8 U	1.8 U	1.3 U
CHLORDANE	UG/KG	12.0	--	--	6.1 U	6.4 U	4.5 U
CHLOROBENSIDE	UG/KG	1.72	--	--	5.4 U	5.7 U	**5.2 J**
DACHTAL	UG/KG	1.13	--	--	3.6 U	3.7 U	2.6 PG U
DELTA-BHC	UG/KG	0.420	--	--	1.4 U	1.5 U	1.1 U
DIELDRIN	UG/KG	0.732	0.715	4.3	**1.4 J PG**	1.3 U	**1.5 J PG**
ENDOSULFAN I	UG/KG	0.077	--	--	1.3 U	1.3 U	0.95 U
ENDOSULFAN II	UG/KG	0.416	--	--	2.1 U	2.1 U	1.5 U
ENDOSULFAN SULFATE	UG/KG	0.414	--	--	1.8 U	1.9 U	1.3 U
ENDRIN	UG/KG	0.694	--	--	1.3 U	1.4 U	0.97 U
ENDRIN ALDEHYDE	UG/KG	0.440	--	--	2.9 U	3 U	2.1 U
GAMMA-BHC	UG/KG	0.730	0.32	0.99	1.1 U	1.2 U	0.82 U
HEPTACHLOR	UG/KG	0.804	--	--	1.3 U	1.3 U	0.94 U
HEPTACHLOR EPOXIDE	UG/KG	0.432	--	--	1.6 U	1.7 U	1.2 U
METHOXYCHLOR	UG/KG	1.36	--	--	2.9 U	3 U	2.1 U
MIREX	UG/KG	0.576	--	--	**2.1 J PG**	**4.9 J PG**	**5.5 J PG**
TOXAPHENE	UG/KG	72.6	--	--	18 U	19 U	13 U

**Source* : MacDonald et al. 1996. Ecotoxicology 5: 253-278.

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
TEL = threshold effects level
PEL = probable effects level
J = compound was detected, but below the reporting limit (value is estimated)
PG = the percent difference between the original and confirmation analysis is greater than 40%
U = compound was analyzed but not detected

TABLE A-47. ORGANOPHOSHORUS PESTICIDE CONCENTRATIONS (UG/KG) IN SEDIMENT FROM MASONVILLE COVE

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

			MASONVILLE COVE		
		Sample ID	MSNSURF05-2-S	MSNSURF05-3-S	MSNSURF05-4-S
ANALYTE	UNITS	MDL			
AZINPHOS-METHYL	UG/KG	52.8	66 U	69 U	49 U
DEMETON (TOTAL)	UG/KG	100.4	120 U	130 U	92 U
MALATHION	UG/KG	36.8	46 U	48 U	34 U
METHYL PARATHION	UG/KG	37.6	47 U	49 U	35 U
PARATHION	UG/KG	45.6	57 U	60 U	42 U

There are no TEL and PEL values for organophosphorus pesticides

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
U = compound was analyzed but not detected

TABLE A-48. DIOXIN AND FURAN CONGENER CONCENTRATIONS (PG/G) IN SEDIMENT FROM MASONVILLE COVE

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

			MASONVILLE COVE		
		Sample ID	**MSNSURF05-2-S**	**MSNSURF05-3-S**	**MSNSURF05-4-S**
ANALYTE	**TEF***	**UNITS**			
2,3,7,8-TCDD	1	PG/G	1.7 U	1.6 U	1.1 U
1,2,3,7,8-PECDD	0.5	PG/G	5 U	4.8 U	**6.5 J**
1,2,3,4,7,8-HXCDD	0.1	PG/G	6.2 U	8.1 U	**9.5 J**
1,2,3,6,7,8-HXCDD	0.1	PG/G	**25**	**48**	**56**
1,2,3,7,8,9-HXCDD	0.1	PG/G	**17**	**20**	**24**
1,2,3,4,6,7,8-HPCDD	0.01	PG/G	**570**	**990**	**1400**
OCDD	0.001	PG/G	**13,000 E**	**13,000 E**	**18,000 E**
2,3,7,8-TCDF	0.1	PG/G	**5.8**	**8.5**	**7.6**
1,2,3,7,8-PECDF	0.05	PG/G	6.1 U	**9.6 J**	**9.9 J**
2,3,4,7,8-PECDF	0.5	PG/G	**9.6 J**	**16 J**	**18**
1,2,3,4,7,8-HXCDF	0.1	PG/G	**23**	**52**	**70**
1,2,3,6,7,8-HXCDF	0.1	PG/G	**10 J**	**18**	**25**
2,3,4,6,7,8-HXCDF	0.1	PG/G	**8.7 J**	**14 J**	**17**
1,2,3,7,8,9-HXCDF	0.1	PG/G	1.5 U	2.1 U	1.7 U
1,2,3,4,6,7,8-HPCDF	0.01	PG/G	**170**	**330**	**540**
1,2,3,4,7,8,9-HPCDF	0.01	PG/G	**14 J**	**36**	**46**
OCDF	0.001	PG/G	**490**	**990**	**1500**
DIOXIN TEQ (ND=0)	--	PG/G	**22.6**	**39.5**	**58.7**
DIOXIN TEQ (ND=1/2DL	--	PG/G	**26.5**	**43.2**	**59.4**

***** *Source:* USEPA 1989. *1989 Update to the Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-Dioxins and Dibenzofurans (CDDs and CDFs)*

There are no TEL and PEL values for dioxin and furan congeners

NOTE: Shaded and bold values represent detected concentrations.

RL = average reporting limit

TEF = toxicity equivalency factor

TEQ = toxicity equivalency quotient

J = compound was detected, but below the reporting limit (value is estimated)

E = amount detected is greater than the method calibration limit

U = compound was analyzed but not detected

TABLE A-49. BUTYLTIN CONCENTRATIONS (UG/KG) IN SEDIMENT FROM MASONVILLE COVE

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

		MASONVILLE COVE		
	Sample ID	**MSNSURF05-2-S**	**MSNSURF05-3-S**	**MSNSURF05-4-S**
ANALYTE	**UNITS**			
DIBUTYLTIN	UG/KG	4.6 U	4.1 U	3.2 U
MONOBUTYLTIN	UG/KG	3.6 U	3.1 U	2.4 U
TETRABUTYLTIN	UG/KG	6.1 U	5.3 U	4.2 U
TRIBUTYLTIN	UG/KG	5.3 U	4.7 U	3.7 U

There are no TEL and PEL values for butyltins

NOTE: Shaded and bold values represent detected concentrations.
RL = average reporting limit
P = greater than 25% difference for detected concentrations between the two GC columns
U = compound was analyzed but not detected

TABLE A-50. VOLATILE ORGANIC COMPOUND (VOC) CONCENTRATIONS (UG/KG) FROM MASONVILLE COVE

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

			MASONVILLE COVE		
		Sample ID	MSNSURF05-2-S	MSNSURF05-3-S	MSNSURF05-4-S
ANALYTE	UNITS	MDL			
1,1,1-TRICHLOROETHANE	UG/KG	0.834	0.86 U	0.9 U	0.63 U
1,1,2,2-TETRACHLOROETHANE	UG/KG	1.88	1.4 U	1.5 U	1.1 U
1,1,2-TRICHLOROETHANE	UG/KG	1.20	2.1 U	2.2 U	1.6 U
1,1-DICHLOROETHANE	UG/KG	1.13	0.91 U	0.95 U	0.67 U
1,1-DICHLOROETHENE	UG/KG	0.888	1.9 U	1.9 U	1.4 U
1,2-DICHLOROBENZENE	UG/KG	1.06	2.9 U	3.1 U	2.2 U
1,2-DICHLOROETHANE	UG/KG	1.42	0.95 U	1 U	0.71 U
1,2-DICHLOROPROPANE	UG/KG	1.30	2 U	2.1 U	1.5 U
1,3-DICHLOROBENZENE	UG/KG	1.13	2.9 U	3 U	2.1 U
1,4-DICHLOROBENZENE	UG/KG	1.20	2.2 U	2.3 U	1.6 U
2-BUTANONE (MEK)	UG/KG	2.26	4.4 U	4.6 U	3.3 U
2-CHLOROETHYL VINYL ETHER	UG/KG	17.8	29 U	30 U	21 U
ACROLEIN	UG/KG	15.2	300 U	310 U	220 U
ACRYLONITRILE	UG/KG	9.78	84 U	88 U	62 U
BENZENE	UG/KG	1.06	1.7 U	1.8 U	1.3 U
BROMODICHLOROMETHANE	UG/KG	1.32	0.79 U	0.83 U	0.58 U
BROMOFORM	UG/KG	0.728	1.9 U	2 U	1.4 U
BROMOMETHANE	UG/KG	1.20	2.9 U	3.1 U	2.2 U
CARBON TETRACHLORIDE	UG/KG	1.28	0.79 U	0.83 U	0.58 U
CHLOROETHANE	UG/KG	6.00	3 U	3.1 U	2.2 U
CHLOROFORM	UG/KG	1.62	0.79 U	0.83 U	0.58 U
CHLOROMETHANE	UG/KG	1.01	0.91 U	0.95 U	0.67 U
CIS-1,3-DICHLOROPROPENE	UG/KG	0.958	0.91 U	0.95 U	0.67 U
DIBROMOCHLOROMETHANE	UG/KG	1.22	0.82 U	0.86 U	0.61 U
DICHLORODIFLUOROMETHANE	UG/KG	6.98	1.6 U	1.7 U	1.2 U
ETHYLBENZENE	UG/KG	0.978	2.9 U	3.1 U	2.2 U
METHYLENE CHLORIDE	UG/KG	1.98	**5.6 J B**	**5 J B**	**3.7 J B**
TETRACHLOROETHENE	UG/KG	0.740	2.4 U	2.5 U	1.8 U
TOLUENE	UG/KG	1.22	1.9 U	2 U	1.4 U
TRANS-1,2-DICHLOROETHENE	UG/KG	0.926	2.1 U	2.2 U	1.5 U
TRANS-1,3-DICHLOROPROPENE	UG/KG	1.13	0.87 U	0.91 U	0.65 U
TRICHLOROETHENE	UG/KG	1.36	2.7 U	2.8 U	2 U
TRICHLOROFLUOROMETHANE	UG/KG	7.80	3.8 U	4 U	2.8 U
VINYL CHLORIDE	UG/KG	1.42	2.1 U	2.2 U	1.5 U

There are no TEL and PEL values for volatile organic compounds

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
B = compound was detected in method blank
J = compound was detected, but below the reporting limit (value is estimated)
U = compound was analyzed but not detected

TABLE A-51. SEMIVOLATILE ORGANIC COMPOUND (SVOC) CONCENTRATIONS (UG/KG) IN SEDIMENT FROM MASONVILLE COVE

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

				Sample ID	MASONVILLE COVE		
ANALYTE	**UNITS**	**MDL**	**TEL***	**PEL***	**MSNSURF05-2-S**	**MSNSURF05-3-S**	**MSNSURF05-4-S**
1,2,4-TRICHLOROBENZENE	UG/KG	55.6	--	--	53 U	56 U	39 U
1,2-DIPHENYLHYDRAZINE	UG/KG	73.8	--	--	61 U	63 U	45 U
2,2'-OXYBIS(1-CHLOROPROPANE)	UG/KG	48.2	--	--	38 U	40 U	28 U
2,4,6-TRICHLOROPHENOL	UG/KG	69.8	--	--	45 U	47 U	33 U
2,4-DICHLOROPHENOL	UG/KG	66.4	--	--	50 U	52 U	37 U
2,4-DIMETHYLPHENOL	UG/KG	110.4	--	--	42 U	44 U	31 U
2,4-DINITROPHENOL	UG/KG	100.4	--	--	6,600 U	6,900 U	4,900 U
2,4-DINITROTOLUENE	UG/KG	115.4	--	--	28 U	29 U	20 U
2,6-DINITROTOLUENE	UG/KG	91.2	--	--	37 U	39 U	28 U
2-CHLORONAPHTHALENE	UG/KG	51.8	--	--	56 U	58 U	41 U
2-CHLOROPHENOL	UG/KG	62	--	--	41 U	43 U	31 U
2-METHYLPHENOL	UG/KG	80.2	--	--	59 U	61 U	43 U
2-NITROPHENOL	UG/KG	50.8	--	--	47 U	49 U	35 U
3,3'-DICHLOROBENZIDINE	UG/KG	68	--	--	65 U	68 U	48 U
4,6-DINITRO-2-METHYLPHENOL	UG/KG	120	--	--	6,600 U	6,900 U	4,000 U
4-BROMOPHENYL PHENYL ETHER	UG/KG	91.4	--	--	130 U	140 U	97 U
4-CHLORO-3-METHYLPHENOL	UG/KG	72.8	--	--	57 U	60 U	42 U
4-CHLOROPHENYL PHENYL ETHER	UG/KG	84.4	--	--	54 U	56 U	40 U
4-METHYLPHENOL	UG/KG	103.6	--	--	59 U	62 U	44 U
4-NITROPHENOL	UG/KG	144	--	--	35 U	37 U	26 U
BENZOIC ACID	UG/KG	42.2	--	--	2,200 U	2,300 U	1,600 U
BENZYL ALCOHOL	UG/KG	100.4	--	--	300 U	310 U	220 U
BIS(2-CHLOROETHOXY)METHANE	UG/KG	45.2	--	--	59 U	62 U	44 U
BIS(2-CHLOROETHYL) ETHER	UG/KG	48.2	--	--	51 U	53 U	38 U
BIS(2-CHLOROISOPROPYL) ETHER	UG/KG	--	--	--	38 U	40 U	28 U
BIS(2-ETHYLHEXYL) PHTHALATE	UG/KG	97.4	182.16	2,646.51	**530 J**	**510 J**	**1,600 J**
BUTYL BENZYL PHTHALATE	UG/KG	101	--	--	58 U	61 U	43 U
DI-N-BUTYL PHTHALATE	UG/KG	110.4	--	--	320 U	340 U	240 U
DI-N-OCTYL PHTHALATE	UG/KG	106.4	--	--	61 U	63 U	45 U
DIBENZOFURAN	UG/KG	77.6	--	--	59 U	62 U	**84 J**
DIETHYL PHTHALATE	UG/KG	113.4	--	--	53 U	56 U	39 U
DIMETHYL PHTHALATE	UG/KG	97.2	--	--	55 U	58 U	41 U
HEXACHLOROBENZENE	UG/KG	89.6	--	--	53 U	55 U	39 U
HEXACHLOROBUTADIENE	UG/KG	58.6	--	--	51 U	54 U	38 U
HEXACHLOROCYCLOPENTADIENE	UG/KG	64	--	--	210 U	220 U	160 U
HEXACHLOROETHANE	UG/KG	50.8	--	--	50 U	53 U	37 U
ISOPHORONE	UG/KG	46.2	--	--	50 U	53 U	37 U
N-NITROSODI-N-PROPYLAMINE	UG/KG	55.4	--	--	53 U	56 U	40 U
N-NITROSODIMETHYLAMINE	UG/KG	54.4	--	--	660 U	690 U	490 U
N-NITROSODIPHENYLAMINE	UG/KG	87.8	--	--	550 U	570 U	400 U
NITROBENZENE	UG/KG	47.4	--	--	85 U	89 U	63 U
PENTACHLOROPHENOL	UG/KG	100.4	--	--	3,600 U	3,800 U	2,700 U
PHENOL	UG/KG	49.8	--	--	54 U	57 U	40 U

**Source* : MacDonald et al. 1996. Ecotoxicology 5: 253-278.

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
TEL = threshold effects level
PEL = probable effects level
J = compound was detected, but below the reporting limit (value is estimated)
U = compound was analyzed but not detected

TABLE A-52. PHYSICAL PARAMETERS OF SEDIMENT AT DEPTH IN SEDIMENT FROM WITHIN THE PROPOSED ALIGNMENT (LOCATIONS 05A, 06, AND 08)

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

		LOCATION 05A			LOCATION 06			LOCATION 08
		0-19 ft. [(a)]	19-25 ft. [(a)]	25-27.5 ft. [(a)]	0-26 ft. [(a)]	26-33 ft. [(a)]	33-43 ft. [(a)]	26-31 ft. [(a)]
ANALYTE	**UNITS**							
GRAVEL	%	0	37.5	17.8	0	0	5.5	9.5
CLAY	%	31.1	5.9	38	51.9	17.6	3.9	19.3
SILT	%	54.3	12.3	25.5	42	36.6	16.2	11.8
COARSE SAND	%	0.7	5.4	5.1	0	0	9.2	5.7
FINE SAND	%	12.8	27.2	6.4	5.8	45.6	41.7	26
MEDIUM SAND	%	1.1	11.7	7.2	0.3	0.2	23.6	27.6
SAND (TOTAL)	%	14.6	44.3	18.7	6.1	45.8	74.5	59.3
LIQUID LIMIT	--		0	47		0	0	64
PLASTIC LIMIT	--		0	26		0	0	0
PLASTICITY INDEX	--		0	21		0	0	0
PERCENT SOLIDS	%	47.1	80.3	77.1	47.4	75.4	80.6	53.5
SPECIFIC GRAVITY	--	2.681	2.715	2.66	2.02	2.727	2.696	2.598

(a) = depth below sediment surface

TABLE A-53. GENERAL CHEMISTRY PARAMETERS IN SEDIMENT AT DEPTH FROM WITHIN THE PROPOSED ALIGNMENT (LOCATIONS 05A, 06, AND 08)

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

			LOCATION 05A			LOCATION 06			LOCATION 08
			0-19 ft. [(a)]	19-25 ft. [(a)]	25-27.5 ft. [(a)]	0-26 ft. [(a)]	26-33 ft. [(a)]	33-43 ft. [(a)]	26-31 ft. [(a)]
ANALYTE	**UNITS**	**MDL**							
TOTAL ORGANIC CARBON	MG/KG	0.13	**1.93**	**0.220**	**0.250**	**2.74**	**0.240**	**0.150**	**3.53**
NITRATE + NITRITE	MG/KG	0.68	NA	**0.59 B**	**0.59 B**	NA	**0.5 B**	**0.28 B**	**0.43 B**
TOTAL KJELDAHL NITROGEN	MG/KG	121.6	**1,670**	**26,100**	**18,700**	**2,180**	63.7 U	**174 B**	**35,100**
BIOCHEMICAL OXYGEN DEMAND	MG/KG	303.4	NA	149 U	156 U	NA	159 U	149 U	**785**
CHEMICAL OXYGEN DEMAND	MG/KG	25.28	**921**	**199**	**415**	**433**	**333**	**170**	**341**
TOTAL CYANIDE	MG/KG	0.436	NA	0.27 U	**1**	NA	0.29 U	0.27 U	0.41 U
OIL & GREASE (HEM)	MG/KG	195.2	164 U	96.2 U	100 U	163 U	102 U	95.8 U	144 U
PH	NO UNITS	--			7.6				7.7
TOTAL PHOSPHORUS	MG/KG	58.14	**949**	**145**	**263**	**721**	**213**	**84.8**	**117**
SULFIDE	MG/KG	2.52	NA	15.3 U	15.9 U	--	16.3 U	15.2 U	22.9 U
ACID VOLATILE SULFIDE	UMOLE/G	1.26	NA	**1.2**	0.63 U	NA	0.64 U	0.62 U	0.8 U

(a) = depth below sediment surface

NOTE: Shaded and bold values represent detected concentrations.

MDL = average method detection limit

NA = constituent was not analyzed for this sample

B (inorganic) **=** compound was detected, but below reporting limit (value is estimated).

U = compound was analyzed but not detected

TABLE A-54. METAL CONCENTRATIONS (MG/KG) FROM SEDIMENT AT DEPTH WITHIN THE PROPOSED ALIGNMENT (LOCATIONS 05A, 06, AND 08)

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

					LOCATION 05A			LOCATION 06			LOCATION 08
					0-19 ft. [(a)]	19-25 ft. [(a)]	25-27.5 ft. [(a)]	0-26 ft. [(a)]	26-33 ft. [(a)]	33-43 ft. [(a)]	26-31 ft. [(a)]
ANALYTE	**UNITS**	**MDL**	**TEL***	**PEL***							
ANTIMONY	MG/KG	0.402	--	--	--	0.32 N U	0.31 N U	--	0.32 N U	0.32 N U	0.3 N U
ARSENIC	MG/KG	0.302	7.24	41.6	**54.3**	**3.1**	**2.1**	**23.7**	**0.99 B**	**1**	**3.1**
BERYLLIUM	MG/KG	0.036	--	--	--	**0.57**	**1**	--	**0.68**	**0.45**	**0.78**
CADMIUM	MG/KG	0.050	0.676	4.21	**1.2**	0.069 U	0.068 U	**0.97**	0.069 U	0.069 U	0.065 U
CHROMIUM	MG/KG	0.079	52.3	160.4	**92.9**	**15.9**	**33.5**	**90.2**	**21.7**	**9.1**	**21.5**
COPPER	MG/KG	0.136	18.7	108.2	**257**	**12.6**	**28**	**112**	**12**	**5.5**	**11**
LEAD	MG/KG	0.330	30.24	112.18	**107 E**	**3.6**	**6.9**	**60.8 E**	**4.9**	**2.3**	**4.2**
MERCURY	MG/KG	0.005	0.13	0.696	**0.58**	**0.047**	**0.06**	**0.38**	**0.02 B**	0.0079 U	**0.01 B**
NICKEL	MG/KG	0.106	15.9	42.8	--	**6.9**	**17.9**	--	**10.4**	**5**	**11.8**
SELENIUM	MG/KG	0.292	--	--	**6.4**	**0.66**	**0.84**	**3**	0.26 U	**0.31 B**	**0.91**
SILVER	MG/KG	0.073	0.73	1.77	**0.41 B**	**0.042 B**	0.029 U	**0.24**	0.03 U	0.03 U	**0.034 B**
THALLIUM	MG/KG	0.500	--	--	--	0.45 U	**0.45 B**	--	0.45 U	0.45 U	**0.73 B**
ZINC	MG/KG	0.158	124	271	**259 E**	**19.7 E**	**35.3 E**	**174 E**	**27.3 E**	**15.1 E**	**26.3 E**
RATIO OF SEM/AVS	--	--	--	--	--	**0.38**	--	--	--	--	--

(a) = depth below sediment surface

**Source* : MacDonald et al. 1996. Ecotoxicology 5: 253-278.

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
TEL = threshold effects level
PEL = probable effects level
B (inorganic) **=** compound was detected, but below reporting limit (value is estimated).
E = reported value is estimated because of the presence of interference
N = spiked sample recovery is not within control limits
U = compound was analyzed but not detected

TABLE A-55. PCB CONGENER CONCENTRATIONS (UG/KG) FROM SEDIMENT AT DEPTH WITHIN THE PROPOSED ALIGNMENT (LOCATIONS 05A, 06, AND 08)

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

					LOCATION 05A			LOCATION 06			LOCATION 08
					0-19 ft. [(a)]	19-25 ft. [(a)]	25-27.5 ft. [(a)]	0-26 ft. [(a)]	26-33 ft. [(a)]	33-43 ft. [(a)]	26-31 ft. [(a)]
ANALYTE	**UNITS**	**MDL**	**TEL****	**PEL****							
PCB 8*	UG/KG	0.241	--	--	**0.36 PG**	**0.17 J PG**	0.045 U	**1.5 PG**	**0.12 J PG**	**0.21 PG**	0.065 U
PCB 18*	UG/KG	0.160	--	--	**0.94 PG**	0.029 U	0.03 U	**4.2 PG**	**0.22 J PG**	**0.13 J PG**	0.043 U
PCB 28*	UG/KG	0.260	--	--	**1.7**	**0.054 J PG**	0.049 U	**6.4**	**0.15 J PG**	**0.22**	0.07 U
PCB 44*	UG/KG	0.240	--	--	**2**	0.043 U	0.045 U	**4.4**	**0.055 J PG**	**0.073 J**	0.064 U
PCB 49	UG/KG	0.245	--	--	**1.2**	0.044 U	0.046 U	**4.8**	0.047 U	0.044 U	0.066 U
PCB 52*	UG/KG	0.233	--	--	**2.6**	0.041 U	0.043 U	**4.4**	**0.098 J**	**0.062 J PG**	0.062 U
PCB 66*	UG/KG	0.189	--	--	**1.9 PG**	0.034 U	0.035 U	**4.5 PG**	**0.1 J PG**	**0.04 J PG**	0.051 U
PCB 77*	UG/KG	0.252	--	--	0.078 U	0.046 U	0.047 U	0.077 U	0.048 U	0.045 U	0.068 U
PCB 87	UG/KG	0.217	--	--	**2.1 PG**	0.039 U	0.04 U	**1.3 PG**	0.041 U	0.039 U	0.058 U
PCB 101*	UG/KG	0.234	--	--	**4.3**	0.042 U	0.044 U	**5.7**	0.045 U	0.042 U	0.063 U
PCB 105*	UG/KG	0.243	--	--	**2.2**	0.044 U	0.045 U	**1.4**	0.046 U	0.043 U	0.065 U
PCB 118*	UG/KG	0.238	--	--	**5.1**	0.043 U	0.044 U	**3.4**	0.045 U	**0.049 J**	0.064 U
PCB 126*	UG/KG	0.306	--	--	0.093 U	0.055 U	0.057 U	0.093 U	0.058 U	0.054 U	0.082 U
PCB 128*	UG/KG	0.238	--	--	**1.2 PG**	0.043 U	0.045 U	**0.73**	0.046 U	0.043 U	0.064 U
PCB 138*	UG/KG	0.248	--	--	**4.5**	0.045 U	0.047 U	**4.1**	0.048 U	0.045 U	0.067 U
PCB 153*	UG/KG	0.241	--	--	**3.9**	**0.047 J**	0.045 U	**5.2**	0.046 U	**0.044 J**	0.065 U
PCB 156	UG/KG	0.234	--	--	**0.78 PG**	0.042 U	0.044 U	**0.51**	0.045 U	0.042 U	0.063 U
PCB 169*	UG/KG	0.227	--	--	0.07 U	0.041 U	0.043 U	0.069 U	0.044 U	0.041 U	0.062 U
PCB 170*	UG/KG	0.240	--	--	**1.1 PG**	0.043 U	0.045 U	**2.7**	0.046 U	0.043 U	0.064 U
PCB 180*	UG/KG	0.238	--	--	**2.6**	0.043 U	0.044 U	**3.9**	0.045 U	0.042 U	0.064 U
PCB 183	UG/KG	0.233	--	--	**0.4 PG**	0.041 U	0.043 U	**0.69 PG**	0.044 U	0.041 U	0.062 U
PCB 184	UG/KG	0.200	--	--	0.061 U	0.036 U	0.037 U	0.061 U	0.038 U	0.036 U	0.054 U
PCB 187*	UG/KG	0.245	--	--	**1.4**	0.044 U	0.046 U	**2.3**	0.047 U	0.044 U	0.066 U
PCB 195	UG/KG	0.234	--	--	**0.14 J PG**	0.042 U	0.044 U	**0.4**	0.045 U	0.042 U	0.063 U
PCB 206	UG/KG	0.233	--	--	**0.98**	0.042 U	0.043 U	**0.87**	0.044 U	0.042 U	0.063 U
PCB 209	UG/KG	0.248	--	--	**1.6**	0.045 U	0.047 U	**1.1**	0.048 U	0.045 U	0.067 U
TOTAL PCBs (ND=0)	UG/KG	--	21.55	188.79	**71.6**	**0.542**	0	**110**	**1.49**	**1.66**	0
TOTAL PCBs (ND=1/2DL)	UG/KG	--	21.55	188.79	**71.8**	**1.18**	**0.799**	**110**	**2.05**	**2.10**	**1.15**

(a) = depth below sediment surface

*PCB congeners used for Total PCB summation, as per Table 9-3 of the ITM (USEPA/USACE 1998)

***Source*: MacDonald et al. 1996. Ecotoxicology 5: 253-278.

NOTE: Shaded and bold values represent detected concentrations.

MDL = average method detection limit

TEL = threshold effects level

PEL = probable effects level

J = compound was detected, but below the reporting limit (value is estimated)

PG = the percent difference between the original and confirmation analysis is greater than 40%

U = compound was analyzed but not detected

TABLE A-56. PCB AROCLOR CONCENTRATIONS (UG/KG) FROM SEDIMENT AT DEPTH WITHIN THE PROPOSED ALIGNMENT (LOCATIONS 05A, 06, AND 08)

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

			LOCATION 05A			LOCATION 06			LOCATION 08
			0-19 ft. [(a)]	19-25 ft. [(a)]	25-27.5 ft. [(a)]	0-26 ft. [(a)]	26-33 ft. [(a)]	33-43 ft. [(a)]	26-31 ft. [(a)]
ANALYTE	**UNITS**	**MDL**							
AROCLOR 1016	UG/KG	33.2	--	26 U	26 U	--	26 U	26 U	25 U
AROCLOR 1221	UG/KG	16.2	--	13 U	12 U	--	13 U	13 U	12 U
AROCLOR 1232	UG/KG	19.8	--	16 U	15 U	--	16 U	16 U	15 U
AROCLOR 1242	UG/KG	14.2	--	11 U	11 U	--	11 U	11 U	10 U
AROCLOR 1248	UG/KG	15.2	--	12 U	12 U	--	12 U	12 U	11 U
AROCLOR 1254	UG/KG	5.56	--	4.4 U	4.3 U	--	4.4 U	4.4 U	4.1 U
AROCLOR 1260	UG/KG	4.66	--	3.7 U	3.6 U	--	3.7 U	3.7 U	3.4 U

(a) = depth below sediment surface
There are no TEL and PEL values for PCB Aroclors

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
U = compound was analyzed but not detected

TABLE A-57. PAH CONCENTRATIONS (UG/KG) FROM SEDIMENT AT DEPTH WITHIN THE PROPOSED ALIGNMENT (LOCATIONS 05A, 06, AND 08)

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

					LOCATION 05A			LOCATION 06			LOCATION 08
					0-19 ft. [(a)]	19-25 ft. [(a)]	25-27.5 ft. [(a)]	0-26 ft. [(a)]	26-33 ft. [(a)]	33-43 ft. [(a)]	26-31 ft. [(a)]
ANALYTE	**UNITS**	**MDL**	**TEL***	**PEL***							
1-METHYLNAPHTHALENE	UG/KG	6.00	--	--	--	**5.6 J**	2 U	--	2 U	2 U	1.9 U
2-METHYLNAPHTHALENE	UG/KG	6.86	20.21	201.28	--	**3.9 J**	2.3 U	--	2.3 U	2.3 U	2.2 U
ACENAPHTHENE	UG/KG	6.18	6.71	88.9	--	--	**2.1 J**	--	2.1 U	2.1 U	2 U
ACENAPHTHYLENE	UG/KG	6.18	5.87	127.87	--	**2.7 J**	2 U	--	2.1 U	2.1 U	2 U
ANTHRACENE	UG/KG	5.06	46.85	245	--	**7.4**	1.7 U	--	1.7 U	**1.8 J**	1.6 U
BENZO(A)ANTHRACENE	UG/KG	4.66	74.83	692.53	--	**9.5**	1.5 U	--	1.6 U	**3 J**	1.5 U
BENZO(A)PYRENE	UG/KG	6.28	88.81	763.22	--	**6.9**	2.1 U	--	2.1 U	**2.5 J**	2 U
BENZO(B)FLUORANTHENE	UG/KG	3.46	--	--	--	**7.6**	1.1 U	--	1.2 U	**2.9 J**	1.1 U
BENZO(GHI)PERYLENE	UG/KG	3.64	--	--	--	**5.1 J**	1.2 U	--	1.2 U	**2.2 J**	1.2 U
BENZO(K)FLUORANTHENE	UG/KG	6.98	--	--	--	**2.8 J**	2.3 U	--	2.4 U	2.4 U	2.2 U
CHRYSENE	UG/KG	4.20	107.77	845.98	--	**13**	1.4 U	--	1.4 U	**3.1 J**	1.3 U
DIBENZO(A,H)ANTHRACENE	UG/KG	4.20	6.22	134.61	--	**1.4 J**	1.4 U	--	1.4 U	1.4 U	1.3 U
FLUORANTHENE	UG/KG	4.06	112.82	1,493.54	--	**15**	2.2 U	--	2.2 U	**5.8 J**	2.1 U
FLUORENE	UG/KG	6.62	21.17	144.35	--	**6.8**	2.2 U	--	2.2 U	**2.5 J**	2.1 U
INDENO(1,2,3-CD)PYRENE	UG/KG	3.98	--	--	--	**4 J**	1.3 U	--	1.3 U	**1.7 J**	1.3 U
NAPHTHALENE	UG/KG	6.96	34.57	390.64	--	**4.6 J**	2.3 U	--	2.3 U	2.3 U	2.2 U
PHENANTHRENE	UG/KG	5.34	86.68	543.53	--	**22**	**3.9 J**	--	**4.3 J**	**7.8**	**2.4 J**
PYRENE	UG/KG	3.78	152.66	1397.6	--	**20**	**1.5 J**	--	**1.6 J**	**6 J**	1.2 U
TOTAL PAHs (ND=0)	UG/KG	--	1,684.06	16,770.40	--	**149**	**7.5**	--	**5.9**	**39.3**	**2.4**
TOTAL PAHs (ND=1/2DL)	UG/KG	--	1,684.06	16,770.40	--	**149**	**21**	--	**20.7**	**46.6**	**17**

(a) = depth below sediment surface

**Source* : MacDonald et al. 1996. Ecotoxicology 5: 253-278.

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
TEL = threshold effects level
PEL = probable effects level
J = compound was detected, but below the reporting limit (value is estimated)
U = compound was analyzed but not detected

TABLE A-58. CHLORINATED PESTICIDE CONCENTRATIONS (UG/KG) FROM SEDIMENT AT DEPTH WITHIN THE PROPOSED ALIGNMENT (LOCATIONS 05A, 06, AND 08)

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

					LOCATION 05A			LOCATION 06			LOCATION 08
					0-19 ft. [(a)]	19-25 ft. [(a)]	25-27.5 ft. [(a)]	0-26 ft. [(a)]	26-33 ft. [(a)]	33-43 ft. [(a)]	26-31 ft. [(a)]
ANALYTE	**UNITS**	**MDL**	**TEL***	**PEL***							
4,4'-DDD	UG/KG	0.690	1.22	7.81	**3.7**	0.16 U	0.16 U	**5.3**	0.16 U	0.16 U	0.15 U
4,4'-DDE	UG/KG	0.404	2.07	374.17	**2.7 PG**	0.21 U	0.2 U	**1.9 PG**	0.21 U	0.21 U	0.19 U
4,4'-DDT	UG/KG	0.658	1.19	4.77	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.17 U
ALDRIN	UG/KG	0.404	--	--	0.22 U	0.21 U	0.21 U	0.22 U	0.21 U	0.21 U	0.2 U
ALPHA-BHC	UG/KG	0.698	--	--	0.15 U	0.14 U	0.14 U	0.15 U	0.14 U	0.14 U	0.13 U
BETA-BHC	UG/KG	0.446	--	--	0.24 U	0.22 U	0.22 U	0.23 U	0.22 U	0.22 U	0.21 U
CHLORDANE	UG/KG	12.0	--	--	0.83 U	0.77 U	0.76 U	0.82 U	0.77 U	0.77 U	0.73 U
CHLOROBENSIDE	UG/KG	1.72	--	--	0.73 U	0.69 U	0.67 U	0.73 U	0.68 U	0.68 U	0.64 U
DACHTAL	UG/KG	1.13	--	--	0.48 U	0.45 U	0.44 U	0.48 U	0.45 U	0.45 U	0.42 U
DELTA-BHC	UG/KG	0.420	--	--	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.17 U
DIELDRIN	UG/KG	0.732	0.715	4.3	**1.3 J PG**	0.16 U c	0.16 U c	**0.52 J PG**	0.16 U	0.16 U	0.15 U
ENDOSULFAN I	UG/KG	0.077	--	--	0.17 U	0.16 U	0.16 U	0.17 U	0.16 U	0.16 U	0.15 U
ENDOSULFAN II	UG/KG	0.416	--	--	0.28 U	0.26 U	0.25 U	**0.4 J PG**	0.26 U	0.26 U	0.24 U
ENDOSULFAN SULFATE	UG/KG	0.414	--	--	0.24 U	0.23 U	0.22 U	0.24 U	0.23 U	0.23 U	0.21 U
ENDRIN	UG/KG	0.694	--	--	**2.3 PG**	0.17 U	0.16 U	**1.1 J PG**	0.17 U	0.17 U	0.16 U
ENDRIN ALDEHYDE	UG/KG	0.440	--	--	0.38 U	0.36 U	0.35 U	0.38 U	0.36 U	0.36 U	0.34 U
GAMMA-BHC	UG/KG	0.730	0.32	0.99	0.15 U	0.14 U	0.14 U	0.15 U	0.14 U	0.14 U	0.13 U
HEPTACHLOR	UG/KG	0.804	--	--	0.17 U	0.16 U	0.16 U	0.17 U	0.16 U	0.16 U	0.15 U
HEPTACHLOR EPOXIDE	UG/KG	0.432	--	--	0.22 U	0.2 U	0.2 U	0.21 U	0.2 U	0.2 U	0.19 U
METHOXYCHLOR	UG/KG	1.36	--	--	0.39 U	0.37 U	0.36 U	0.39 U	0.37 U	0.36 U	0.34 U
MIREX	UG/KG	0.576	--	--	0.24 U	0.23 U	0.22 U	0.24 U	0.23 U	0.23 U	0.21 U
TOXAPHENE	UG/KG	72.6	--	--	2.4 U	2.3 U	2.2 U	2.4 U	2.3 U	2.2 U	2.1 U

(a) = depth below sediment surface

**Source* : MacDonald et al. 1996. Ecotoxicology 5: 253-278.

NOTE: Shaded and bold values represent detected concentrations.

MDL = average method detection limit

TEL = threshold effects level

PEL = probable effects level

J = compound was detected, but below the reporting limit (value is estimated)

PG = the percent difference between the original and confirmation analysis is greater than 40%

U = compound was analyzed but not detected

TABLE A-59. ORGANOPHOSPHORUS PESTICIDE CONCENTRATIONS (UG/KG) FROM SEDIMENT AT DEPTH WITHIN THE PROPOSED ALIGNMENT (LOCATIONS 05A, 06, AND 08)

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

			LOCATION 05A			LOCATION 06			LOCATION 08
			0-19 ft. [(a)]	19-25 ft. [(a)]	25-27.5 ft. [(a)]	0-26 ft. [(a)]	26-33 ft. [(a)]	33-43 ft. [(a)]	26-31 ft. [(a)]
ANALYTE	**UNITS**	**MDL**							
AZINPHOS-METHYL	UG/KG	52.8	--	8.3 U	8.1 U	--	8.3 U	8.3 U	7.8 U
DEMETON (TOTAL)	UG/KG	100.4	--	16 U	15 U	--	16 U	16 U	15 U
MALATHION	UG/KG	36.8	--	5.8 U	5.7 U	--	5.8 U	5.8 U	5.4 U
METHYL PARATHION	UG/KG	37.6	--	5.9 U	5.8 U	--	5.9 U	5.9 U	5.5 U
PARATHION	UG/KG	45.6	--	7.2 U	7 U	--	7.2 U	7.2 U	6.7 U

(a) = depth below sediment surface
There are no TEL and PEL values for organophosphorus pesticides

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
U = compound was analyzed but not detected

TABLE A-60. DIOXIN AND FURAN CONGENER CONCENTRATIONS (PG/G) AT DEPTH IN SEDIMENT FROM WITHIN THE PROPOSED ALIGNMENT (LOCATIONS 05A, 06, AND 08)

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

				LOCATION 05A			LOCATION 06			LOCATION 08
				0-19 ft. [(a)]	19-25 ft. [(a)]	25-27.5 ft. [(a)]	0-26 ft. [(a)]	26-33 ft. [(a)]	33-43 ft. [(a)]	26-31 ft. [(a)]
ANALYTE	**UNITS**	**RL**	**TEF***							
2,3,7,8-TCDD	PG/G	1.2	1	--	0.59 U	0.95 U	--	0.69 U	0.5 U	1.1 U
1,2,3,7,8-PECDD	PG/G	3.7	1	--	1.2 U	1.8 U	--	1.3 U	1.1 U	2.6 U
1,2,3,4,7,8-HXCDD	PG/G	4.5	0.1	--	0.95 U	1.3 U	--	1.2 U	0.74 U	1.5 U
1,2,3,6,7,8-HXCDD	PG/G	--	0.1	--	0.83 U	1.1 U	--	1.2 U	0.69 U	1.3 U
1,2,3,7,8,9-HXCDD	PG/G	4.5	0.1	--	1.4 U	2.5 U	--	1.2 U	0.71 U	2.6 U
1,2,3,4,6,7,8-HPCDD	PG/G	--	0.01	--	**11**	**16**	--	**4.6 J**	**5.8 J**	**43**
OCDD	PG/G	--	0.0001	--	**450**	**250**	--	**92**	**340**	**1,200**
2,3,7,8-TCDF	PG/G	--	0.1	--	0.44 U	0.96 U	--	0.42 U	0.38 U	1.2 U
1,2,3,7,8-PECDF	PG/G	4.3	0.05	--	0.69 U	1 U	--	0.6 U	0.63 U	1.3 U
2,3,4,7,8-PECDF	PG/G	1.9	0.5	--	0.78 U	1 U	--	0.69 U	0.72 U	1.4 U
1,2,3,4,7,8-HXCDF	PG/G	4.6	0.1	--	0.49 U	0.67 U	--	0.65 U	0.57 U	0.97 U
1,2,3,6,7,8-HXCDF	PG/G	2.6	0.1	--	0.4 U	0.53 U	--	0.57 U	0.5 U	0.84 U
2,3,4,6,7,8-HXCDF	PG/G	2.2	0.1	--	0.41 U	0.53 U	--	0.53 U	0.46 U	0.82 U
1,2,3,7,8,9-HXCDF	PG/G	1.6	0.1	--	0.46 U	0.64 U	--	0.58 U	0.51 U	1 U
1,2,3,4,6,7,8-HPCDF	PG/G	--	0.01	--	0.92 U	0.56 U	--	0.62 U	0.56 U	0.77 U
1,2,3,4,7,8,9-HPCDF	PG/G	5.8	0.01	--	0.66 U	0.88 U	--	0.82 U	0.6 U	1.3 U
OCDF	PG/G	--	0.0001	--	2.3 U	1.3 U	--	1.4 U	0.76 U	1.9 U
DIOXIN TEQ (ND=0)	PG/G	--	--	--	**0.155**	**0.185**	--	**0.055**	**0.092**	**0.550**
DIOXIN TEQ (ND=1/2DL)	PG/G	--	--	--	**1.54**	**2.25**	--	**1.56**	**1.32**	**3.30**

(a) = depth below sediment surface

***** *Source:* USEPA 1989. *1989 Update to the Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-Dioxins and Dibenzofurans (CDDs and CDFs)*

There are no TEL and PEL values for dioxin and furan congeners

NOTE: Shaded and bold values represent detected concentrations.

RL = average reporting limit

TEF = toxicity equivalency factor

TEQ = toxicity equivalency quotient

J = compound was detected, but below the reporting limit (value is estimated)

JA = the analyte was positively identified, but the quantitation is an estimate

U = compound was analyzed but not detected

TABLE A-61. BUTYLTIN CONCENTRATIONS (UG/KG) FROM SEDIMENT AT DEPTH WITHIN THE PROPOSED ALIGNMENT (LOCATIONS 05A, 06, AND 08)

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

			LOCATION 05A			LOCATION 06			LOCATION 08
			0-19 ft. [(a)]	19-25 ft. [(a)]	25-27.5 ft. [(a)]	0-26 ft. [(a)]	26-33 ft. [(a)]	33-43 ft. [(a)]	26-31 ft. [(a)]
ANALYTE	**UNITS**	**RL**							
DIBUTYLTIN	UG/KG	3.3	--	1.6 U	1.7 U	--	**2.3**	1.7 U	2.3 U
MONOBUTYLTIN	UG/KG	2.54	--	1.2 U	1.3 U	--	1.3 U	1.3 U	1.8 U
TETRABUTYLTIN	UG/KG	4.34	--	2.1 U	2.2 U	--	2.2 U	2.2 U	3 U
TRIBUTYLTIN	UG/KG	3.8	--	1.9 U	1.9 U	--	**3.3 P**	1.9 U	2.6 U

(a) = depth below sediment surface

NOTE: Shaded and bold values represent detected concentrations.

RL = average reporting limit

P = greater than 25% difference for detected concentrations between the two GC columns

U = compound was analyzed but not detected

TABLE A-62. VOLATILE ORGANIC COMPOUND (VOC) CONCENTRATIONS (UG/KG) FROM SEDIMENT AT DEPTH WITHIN THE PROPOSED ALIGNMENT (LOCATIONS 05A, 06, AND 08)

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

			LOCATION 05A			LOCATION 06			LOCATION 08
			0-19 ft. [(a)]	19-25 ft. [(a)]	25-27.5 ft. [(a)]	0-26 ft. [(a)]	26-33 ft. [(a)]	33-43 ft. [(a)]	26-31 ft. [(a)]
ANALYTE	**UNITS**	**MDL**							
1,1,1-TRICHLOROETHANE	UG/KG	0.834	0.58 U	0.34 U	0.35 U	0.57 U	0.36 U	0.34 U	0.51 U
1,1,2,2-TETRACHLOROETHANE	UG/KG	1.88	0.96 U	0.56 U	0.58 U	0.95 U	0.6 U	0.56 U	0.84 U
1,1,2-TRICHLOROETHANE	UG/KG	1.20	1.4 U	0.85 U	0.88 U	1.4 U	0.9 U	0.84 U	1.3 U
1,1-DICHLOROETHANE	UG/KG	1.13	0.61 U	0.36 U	0.37 U	0.61 U	0.38 U	0.36 U	0.54 U
1,1-DICHLOROETHENE	UG/KG	0.888	1.3 U	0.73 U	0.76 U	1.2 U	0.78 U	0.73 U	1.1 U
1,2-DICHLOROBENZENE	UG/KG	1.06	2 U	1.2 U	1.2 U	2 U	1.2 U	1.2 U	1.7 U
1,2-DICHLOROETHANE	UG/KG	1.42	0.64 U	0.38 U	0.39 U	0.64 U	0.4 U	0.38 U	0.57 U
1,2-DICHLOROPROPANE	UG/KG	1.30	1.3 U	0.78 U	0.81 U	1.3 U	0.83 U	0.78 U	1.2 U
1,3-DICHLOROBENZENE	UG/KG	1.13	1.9 U	1.1 U	1.2 U	1.9 U	1.2 U	1.1 U	1.7 U
1,4-DICHLOROBENZENE	UG/KG	1.20	1.5 U	0.85 U	0.89 U	1.4 U	0.91 U	0.85 U	1.3 U
2-BUTANONE (MEK)	UG/KG	2.26	3 U	1.7 U	1.8 U	2.9 U	1.9 U	1.7 U	2.6 U
2-CHLOROETHYL VINYL ETHER	UG/KG	17.8	19 U	11 U	12 U	19 U	12 U	11 U	17 U
ACROLEIN	UG/KG	15.2	200 U	120 U	120 U	200 U	130 U	120 U	180 U
ACRYLONITRILE	UG/KG	9.78	56 U	33 U	35 U	56 U	35 U	33 U	50 U
BENZENE	UG/KG	1.06	1.2 U	0.68 U	0.71 U	1.2 U	0.72 U	0.68 U	1 U
BROMODICHLOROMETHANE	UG/KG	1.32	0.53 U	0.31 U	0.32 U	0.53 U	0.33 U	0.31 U	0.47 U
BROMOFORM	UG/KG	0.728	1.3 U	0.76 U	0.79 U	1.3 U	0.81 U	0.76 U	1.1 U
BROMOMETHANE	UG/KG	1.20	2 U	1.2 U	1.2 U	2 U	1.2 U	1.2 U	1.7 U
CARBON TETRACHLORIDE	UG/KG	1.28	0.53 U	0.31 U	0.32 U	0.53 U	0.33 U	0.31 U	0.47 U
CHLOROETHANE	UG/KG	6.00	2 U	1.2 U	1.2 U	2 U	1.2 U	1.2 U	1.8 U
CHLOROFORM	UG/KG	1.62	0.53 U	0.31 U	0.32 U	0.53 U	0.33 U	0.31 U	0.47 U
CHLOROMETHANE	UG/KG	1.01	0.61 U	0.36 U	0.37 U	0.6 U	0.38 U	0.36 U	0.54 U
CIS-1,3-DICHLOROPROPENE	UG/KG	0.958	0.61 U	0.36 U	0.37 U	0.61 U	0.38 U	0.36 U	0.54 U
DIBROMOCHLOROMETHANE	UG/KG	1.22	0.55 U	0.32 U	0.34 U	0.55 U	0.35 U	0.32 U	0.49 U
DICHLORODIFLUOROMETHANE	UG/KG	6.98	1.1 U	0.63 U	0.66 U	1.1 U	0.67 U	0.63 U	0.95 U
ETHYLBENZENE	UG/KG	0.978	2 U	1.2 U	1.2 U	2 U	1.2 U	1.2 U	1.7 U
METHYLENE CHLORIDE	UG/KG	1.98	**7.5 J B**	**4 J B**	**3.5 J B**	**3.2 J B**	**2 J B**	**5.4 J B**	**5.2 J B**
TETRACHLOROETHENE	UG/KG	0.740	1.6 U	0.96 U	1 U	1.6 U	1 U	0.95 U	1.4 U
TOLUENE	UG/KG	1.22	1.3 U	0.74 U	0.77 U	1.2 U	0.78 U	0.73 U	1.1 U
TRANS-1,2-DICHLOROETHENE	UG/KG	0.926	1.4 U	0.81 U	0.85 U	1.4 U	0.87 U	0.81 U	1.2 U
TRANS-1,3-DICHLOROPROPENE	UG/KG	1.13	0.59 U	0.34 U	0.36 U	0.58 U	0.37 U	0.34 U	0.52 U
TRICHLOROETHENE	UG/KG	1.36	1.8 U	1.1 U	1.1 U	1.8 U	1.1 U	1.1 U	1.6 U
TRICHLOROFLUOROMETHANE	UG/KG	7.80	2.6 U	1.5 U	1.6 U	2.5 U	1.6 U	1.5 U	2.3 U
VINYL CHLORIDE	UG/KG	1.42	1.4 U	0.82 U	0.85 U	1.4 U	0.87 U	0.82 U	1.2 U

(a) = depth below sediment surface
There are no TEL and PEL values for volatiles

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
B = compound was detected in method blank
J = compound was detected, but below the reporting limit (value is estimated)
U = compound was analyzed but not detected

TABLE A-63. SEMIVOLATILE ORGANIC COMPOUND (SVOC) CONCENTRATIONS (UG/KG) FROM SEDIMENT AT DEPTH WITHIN THE PROPOSED ALIGNMENT (LOCATIONS 05A, 06, AND 08)

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

					LOCATION 05A			LOCATION 06			LOCATION 08
					0-19 ft. [(a)]	19-25 ft. [(a)]	25-27.5 ft. [(a)]	0-26 ft. [(a)]	26-33 ft. [(a)]	33-43 ft. [(a)]	26-31 ft. [(a)]
ANALYTE	**UNITS**	**MDL**	**TEL***	**PEL***							
1,2,4-TRICHLOROBENZENE	UG/KG	55.6	--	--	36 U	6.7 U	6.6 U	14 U	6.7 U	6.7 U	6.3 U
1,2-DIPHENYLHYDRAZINE	UG/KG	73.8	--	--	41 U	7.7 U	7.5 U	16 U	7.6 U	7.6 U	7.2 U
2,2'-OXYBIS(1-CHLOROPROPANE)	UG/KG	48.2	--	--	26 U	4.8 U	4.7 U	10 U	4.8 U	4.8 U	4.5 U
2,4,6-TRICHLOROPHENOL	UG/KG	69.8	--	--	30 U	5.7 U	5.6 U	12 U	5.7 U	5.7 U	5.3 U
2,4-DICHLOROPHENOL	UG/KG	66.4	--	--	33 U	6.3 U	6.1 U	13 U	6.2 U	6.2 U	5.9 U
2,4-DIMETHYLPHENOL	UG/KG	110.4	--	--	28 U	5.3 U	5.2 U	11 U	5.3 U	5.3 U	5 U
2,4-DINITROPHENOL	UG/KG	100.4	--	--	4400 U	830 U	810 U	1800 U	830 U	830 U	780 U
2,4-DINITROTOLUENE	UG/KG	115.4	--	--	19 U	3.5 U	3.4 U	7.4 U	3.5 U	3.5 U	3.3 U
2,6-DINITROTOLUENE	UG/KG	91.2	--	--	25 U	4.7 U	4.6 U	10 U	4.7 U	4.7 U	4.4 U
2-CHLORONAPHTHALENE	UG/KG	51.8	--	--	38 U	7 U	6.9 U	15 U	7 U	7 U	6.6 U
2-CHLOROPHENOL	UG/KG	62	--	--	28 U	5.2 U	5.1 U	11 U	5.2 U	5.2 U	4.9 U
2-METHYLPHENOL	UG/KG	80.2	--	--	39 U	7.4 U	7.2 U	16 U	7.4 U	7.4 U	6.9 U
2-NITROPHENOL	UG/KG	50.8	--	--	32 U	6 U	5.8 U	13 U	6 U	6 U	5.6 U
3,3'-DICHLOROBENZIDINE	UG/KG	68	--	--	44 U	8.2 U	8 U	17 U	8.2 U	8.2 U	7.7 U
4,6-DINITRO-2-METHYLPHENOL	UG/KG	120	--	--	4400 U	830 U	810 U	1800 U	830 U	830 U	780 U
4-BROMOPHENYL PHENYL ETHER	UG/KG	91.4	--	--	89 U	17 U	16 U	35 U	17 U	17 U	16 U
4-CHLORO-3-METHYLPHENOL	UG/KG	72.8	--	--	38 U	7.2 U	7.1 U	15 U	7.2 U	7.2 U	6.8 U
4-CHLOROPHENYL PHENYL ETHER	UG/KG	84.4	--	--	36 U	6.8 U	6.6 U	14 U	6.8 U	6.8 U	6.4 U
4-METHYLPHENOL	UG/KG	103.6	--	--	40 U	7.4 U	7.3 U	16 U	7.4 U	7.4 U	7 U
4-NITROPHENOL	UG/KG	144	--	--	24 U	4.5 U	4.4 U	9.4 U	4.4 U	4.4 U	4.2 U
BENZOIC ACID	UG/KG	42.2	--	--	1500 U	280 U	270 U	**810 J**	280 U	270 U	260 U
BENZYL ALCOHOL	UG/KG	100.4	--	--	200 U	37 U	37 U	79 U	37 U	37 U	35 U
BIS(2-CHLOROETHOXY)METHANE	UG/KG	45.2	--	--	40 U	7.4 U	7.3 U	16 U	7.4 U	7.4 U	7 U
BIS(2-CHLOROETHYL) ETHER	UG/KG	48.2	--	--	34 U	6.5 U	6.3 U	14 U	6.4 U	6.4 U	6.1 U
BIS(2-CHLOROISOPROPYL) ETHER	UG/KG	--	--	--	26 U	4.8 U	4.7 U	10 U	4.8 U	4.8 U	4.5 U
BIS(2-ETHYLHEXYL) PHTHALATE	UG/KG	97.4	182.16	2646.51	110 U	21 U	20 U	44 U	21 U	21 U	19 U
BUTYL BENZYL PHTHALATE	UG/KG	101	--	--	39 U	7.4 U	7.2 U	16 U	7.3 U	7.3 U	6.9 U
DIBENZOFURAN	UG/KG	110.4	--	--	40 U	7.5 U	7.3 U	16 U	7.5 U	7.5 U	7 U
DIETHYL PHTHALATE	UG/KG	106.4	--	--	36 U	6.7 U	6.5 U	14 U	6.7 U	6.7 U	6.3 U
DIMETHYL PHTHALATE	UG/KG	77.6	--	--	37 U	6.9 U	6.8 U	15 U	6.9 U	6.9 U	6.5 U
DI-N-BUTYL PHTHALATE	UG/KG	113.4	--	--	220 U	41 U	40 U	86 U	40 U	40 U	38 U
DI-N-OCTYL PHTHALATE	UG/KG	97.2	--	--	41 U	7.7 U	7.5 U	16 U	7.6 U	7.6 U	7.2 U
HEXACHLOROBENZENE	UG/KG	89.6	--	--	36 U	6.7 U	6.5 U	14 U	6.7 U	6.7 U	6.3 U
HEXACHLOROBUTADIENE	UG/KG	58.6	--	--	35 U	6.5 U	6.3 U	14 U	6.5 U	6.5 U	6.1 U
HEXACHLOROCYCLOPENTADIENE	UG/KG	64	--	--	140 U	27 U	26 U	56 U	27 U	26 U	25 U
HEXACHLOROETHANE	UG/KG	50.8	--	--	34 U	6.4 U	6.2 U	13 U	6.4 U	6.3 U	6 U
ISOPHORONE	UG/KG	46.2	--	--	34 U	6.3 U	6.2 U	13 U	6.3 U	6.3 U	6 U
NITROBENZENE	UG/KG	55.4	--	--	57 U	11 U	11 U	23 U	11 U	11 U	10 U
N-NITROSODIMETHYLAMINE	UG/KG	54.4	--	--	440 U	83 U	81 U	180 U	83 U	83 U	78 U
N-NITROSODI-N-PROPYLAMINE	UG/KG	87.8	--	--	36 U	6.7 U	6.6 U	14 U	6.7 U	6.7 U	6.3 U
N-NITROSODIPHENYLAMINE	UG/KG	47.4	--	--	370 U	69 U	67 U	150 U	69 U	69 U	65 U
PENTACHLOROPHENOL	UG/KG	100.4	--	--	2400 U	460 U	440 U	960 U	450 U	450 U	430 U
PHENOL	UG/KG	49.8	--	--	36 U	**11 J**	**12 J**	**100 J**	6.8 U	6.8 U	**34 J**

(a) = depth below sediment surface

**Source*: MacDonald et al. 1996. Ecotoxicology 5: 253-278.

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
TEL = threshold effects level
PEL = probable effects level
J = compound was detected, but below the reporting limit (value is estimated)
U = compound was analyzed but not detected

TABLE A-64. PHYSICAL PARAMETERS OF PROPOSED MASONVILLE BORROW MATERIAL (JANUARY 2006)

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

		Sample ID										
ANALYTE	**UNITS**	**EB-01A-SED**	**EB-01B-SED**	**EB-01C-SED**	**EB-09A-SED**	**EB-09B-SED**	**EB-09C-SED**	**EB-10A-SED**	**EB-10B-SED**	**EB-10C-SED**	**EB-11A-SED**	**EB-11B-SED**
GRAVEL	%	22.2	41.2	27.6	62.4	54.9	46.8	43	13.6	25.2	60	73.7
SAND	%	71	55.8	56.5	34.7	42	44.3	41.9	78.4	69.4	33.6	10.9
SILT	%	3.2	1	8.3	1.3	1.3	4.6	7.9	5.6	3.1	2.8	9.7
CLAY	%	3.6	2.1	7.7	1.6	1.8	4.3	7.2	2.4	2.3	3.5	5.6
SILT+CLAY	%	6.8	3.1	16	2.9	3.1	8.9	15.1	8	5.4	6.3	15.3
LIQUID LIMIT	--	0	0	0	0	0	0	0	0	0	0	36
PLASTIC LIMIT	--	0	0	0	0	0	0	0	0	0	0	24
PLASTICITY INDEX	--	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	12
MOISTURE CONTENT	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PERCENT SOLIDS	%	88.1	88.7	88.9	90.5	93.7	86.2	78.6	90.9	90	79.1	78.2
SPECIFIC GRAVITY	--	2.662	2.686	2.684	2.711	2.698	2.677	2.725	2.683	2.675	2.688	2.713

NA = constituent was not analyzed for this sample
NP = non-plastic

TABLE A-64. CONTINUED

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

		Sample ID										
ANALYTE	**UNITS**	**EB-11C-SED**	**EB-12A-SED**	**EB-12B-SED**	**EB-12C-SED**	**EB-12D-SED**	**EB-13A-SED**	**EB-13B-SED**	**EB-13C-SED**	**EB-14A-SED**	**EB-14B-SED**	**EB-14C-SED**
GRAVEL	%	10.3	0	39.7	0.7	1.9	12.8	38.9	36.4	1.8	2.6	0
SAND	%	20.3	24.6	39	44.2	26.2	69.7	56	38	67.6	89.3	92.6
SILT	%	37.7	47.3	12	33.8	42.8	14.1	2	16.3	15.9	4.4	3.7
CLAY	%	31.7	28.1	9.4	21.3	29.1	3.5	3.1	9.3	14.7	3.7	3.7
SILT+CLAY	%	69.4	75.4	21.4	55.1	71.9	17.6	5.1	25.6	30.6	8.1	7.4
LIQUID LIMIT	--	40	31	0	0	26	0	0	0	0	0	0
PLASTIC LIMIT	--	27	26	0	0	0	0	0	0	0	0	0
PLASTICITY INDEX	--	13	6	NP	NP	NP	NP	NP	NP	NP	NP	NP
MOISTURE CONTENT	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PERCENT SOLIDS	%	71.6	85.8	82.4	85	67.4	86.5	88.2	75.8	82.7	85.1	76.5
SPECIFIC GRAVITY	--	2.739	2.724	2.692	2.693	2.716	2.291	2.302	2.7	2.676	2.664	2.669

NA = constituent was not analyzed for this sample
NP = non-plastic

TABLE A-65. GENERAL CHEMISTRY CONCENTRATIONS IN PROPOSED MASONVILLE BORROW MATERIAL (JANUARY 2006)

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

			Sample ID										
ANALYTE	**UNITS**	**RL**	**EB-01A-SED**	**EB-01B-SED**	**EB-01C-SED**	**EB-09A-SED**	**EB-09B-SED**	**EB-09C-SED**	**EB-10A-SED**	**EB-10B-SED**	**EB-10C-SED**	**EB-11A-SED**	**EB-11B-SED**
TOTAL ORGANIC CARBON	MG/KG	609.409	**676**	**636**	**883**	**1370**	**588**	**703**	**1430**	609 U	**1240**	**1290**	**1130**
AMMONIA NITROGEN	MG/KG	6.018	**9 J**	**10.2 J**	**5.4 B J**	**37.7 J**	**9.5 J**	**6.9 J**	**17.5 J**	**23.6 J**	**4.8 B J**	**20.3 J**	**12 J**
NITRATE-NITRITE	MG/KG	1.209	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.2 U	1.3 U	1.1 U	1.1 U	**0.61 B**	1.3 U
TOTAL KJELDAHL NITROGEN	MG/KG	180.591	170 U	169 U	**104 B**	**170**	160 U	174 U	**196**	**102 B**	**68.4 B**	190 U	192 U
BIOCHEMICAL OXYGEN DEMAND	MG/KG	144.455	136 U	135 U	135 U	133 U	128 U	139 U	153 U	132 U	133 U	152 U	153 U
CHEMICAL OXYGEN DEMAND	MG/KG	240.727	227 U	225 U	225 U	221 U	214 U	232 U	254 U	220 U	222 U	253 U	**212 B**
CYANIDE, TOTAL	MG/KG	0.602	0.57 U	0.56 U	0.56 U	0.55 U	0.53 U	0.58 U	0.64 U	0.55 U	0.56 U	0.63 U	0.64 U
pH	--	--	**7.1**	**6.9**	**6.7**	**7.8**	**7.7**	**7.7**	**6.9**	**7**	**6.9**	**7.2**	**6.6**
TOTAL PHOSPHORUS	MG/KG	18.805	**89.1**	**102**	**98.2**	**95.9**	**53.9**	**53**	12.7 U	**31.7**	**35.7**	**119**	**125**
TOTAL SULFIDE	MG/KG	36.123	34.1 U	33.8 U	33.8 U	33.2 U	32 U	34.8 U	38.2 U	33 U	33.3 U	38 U	38.4 U
ACID VOLATILE SULFIDE	UMOLE/G	0.585	**1.9**	**1.1**	**0.86**	**1.1**	**0.85**	**0.97**	**1.4**	0.6 U	**0.72**	**0.72**	**1.3**

NOTE: Shaded and bold values represent detected concentrations.
RL = average reporting limit
B (inorganic) = compound was detected, but below reporting limit (value is estimated).
J (inorganic) = compound was detected in method blank
U = compound was analyzed but not detected

TABLE A-65. CONTINUED

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

			Sample ID										
ANALYTE	**UNITS**	**RL**	**EB-11C-SED**	**EB-12A-SED**	**EB-12B-SED**	**EB-12C-SED**	**EB-12D-SED**	**EB-13A-SED**	**EB-13B-SED**	**EB-13C-SED**	**EB-14A-SED**	**EB-14B-SED**	**EB-14C-SED**
TOTAL ORGANIC CARBON	MG/KG	609.409	**1520**	**3010**	**4400**	**4270**	**2000**	**1490**	566 U	**648**	**2590**	**744**	637 U
AMMONIA NITROGEN	MG/KG	6.018	**10.9 J**	**16.5 J**	**12.3 J**	**10.4 J**	**14.3 J**	**11.1**	**5.1 B**	**16.6**	**6.7**	**5.5 B**	**5.2 B**
NITRATE-NITRITE	MG/KG	1.209	**1.2 B**	1.2 U	1.2 U	1.2 U	1.5 U	1.2 U	1.1 U	1.3 U	1.2 U	1.2 U	1.3 U
TOTAL KJELDAHL NITROGEN	MG/KG	180.591	**86 B**	**215**	**74.8 B**	177 U	**274**	173 U	170 U	**122 B**	181 U	**109 B**	196 U
BIOCHEMICAL OXYGEN DEMAND	MG/KG	144.455	168 U	140 U	146 U	141 U	178 U	139 U	136 U	158 U	145 U	141 U	157 U
CHEMICAL OXYGEN DEMAND	MG/KG	240.727	**374**	**163 B**	243 U	**142 B**	297 U	231 U	227 U	264 U	242 U	235 U	261 U
CYANIDE, TOTAL	MG/KG	0.602	0.7 U	0.58 U	0.61 U	0.59 U	0.74 U	0.58 U	0.57 U	0.66 U	0.6 U	0.59 U	0.65 U
pH	--	--	**7.6**	**6.2**	**6**	**5.6**	**5.5**	**6.2**	**7.3**	**7**	**7.6**	**7.5**	**7.3**
TOTAL PHOSPHORUS	MG/KG	18.805	**352**	**456**	**69.8**	**48.3**	**111**	**166**	**90.4**	**117**	**44.3**	**24.1**	13.1 U
TOTAL SULFIDE	MG/KG	36.123	41.9 U	35 U	36.4 U	35.3 U	44.5 U	34.7 U	34 U	39.6 U	36.3 U	35.2 U	39.2 U
ACID VOLATILE SULFIDE	UMOLE/G	0.585	**1.4**	**1.1**	**1.7**	**1.9**	**0.8**	**1.2**	**1.1**	**1.5**	**2.1**	**1.2**	**1.2**

NOTE: Shaded and bold values represent detected concentrations.
RL = average reporting limit
B (inorganic) = compound was detected, but below reporting limit (value is estimated).
J (inorganic) = compound was detected in method blank
U = compound was analyzed but not detected

TABLE A-66. METAL CONCENTRATIONS (MG/KG) IN PROPOSED MASONVILLE BORROW MATERIAL (JANUARY 2006)

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

					Sample ID										
ANALYTE	**UNITS**	**MDL**	**TEL***	**PEL***	**EB-01A-SED**	**EB-01B-SED**	**EB-01C-SED**	**EB-09A-SED**	**EB-09B-SED**	**EB-09C-SED**	**EB-10A-SED**	**EB-10B-SED**	**EB-10C-SED**	**EB-11A-SED**	**EB-11B-SED**
ANTIMONY	MG/KG	0.312	--	--	0.31 N U	0.3 N U	0.3 N U	0.32 N U	0.31 N U	0.31 N U	0.31 N U	0.32 N U	0.32 N U	0.3 N U	0.31 N U
ARSENIC	MG/KG	0.322	7.24	41.6	**0.91 B**	**0.75 B**	**0.85 B**	**1.3**	**1.1**	**0.43 B**	**3**	**1.1**	**0.42 B**	**1.6**	**1.3**
BERYLLIUM	MG/KG	0.041	-	-	**0.23 B**	**0.25 B**	**0.32 B**	**0.17 B**	**0.19 B**	**0.22 B**	**0.33 B**	**0.33 B**	**0.25 B**	**0.4**	**0.83**
CADMIUM	MG/KG	0.068	0.676	4.21	0.067 U	0.067 U	0.066 U	0.069 U	0.067 U	0.068 U	0.067 U	0.069 U	0.07 U	0.066 U	0.067 U
CHROMIUM, HEXAVALENT	MG/KG	0.087	--	--	0.082 U	0.082 U	0.082 U	0.08 U	0.078 U	0.084 U	0.092 U	0.08 U	0.081 U	0.092 U	0.093 U
CHROMIUM, TOTAL	MG/KG	0.091	52.3	160.4	**8.8**	**9.1**	**12.3**	**6.8**	**10.6**	**8.5**	**15**	**15.2**	**12.5**	**12.8**	**21.9**
COPPER	MG/KG	0.110	18.7	108.2	**5.7 E**	**43.4 E a**	**5.6 E**	**5.7 E**	**8.9 E**	**162 E ab**	**15.4 E**	**6.7 E**	**3.6 E**	**6.5 E**	**12.3 E**
LEAD	MG/KG	0.155	30.24	112.18	**3.3**	**1.8**	**2.6**	**2.4**	**2.1**	**4.6**	**6**	**3.1**	**2.1**	**6.4**	**4.9**
MERCURY	MG/KG	0.008	0.13	0.696	**0.011 B**	**0.014 B**	**0.025 B**	**0.032 B**	**0.0086 B**	0.0078 U	**0.035**	**0.012 B**	**0.014 B**	**0.021 B**	**0.017 B**
NICKEL	MG/KG	0.120	15.9	42.8	**4.7**	**4.5**	**5.7**	**3.3 B**	**3.5 B**	**3.2 B**	**8**	**6.4**	**3.2 B**	**5.4**	**18.4 a**
SELENIUM	MG/KG	0.255	--	--	0.25 U	0.25 U	**0.27 B**	0.26 U	**0.38 B**	0.26 U	**0.46 B**	**0.3 B**	0.26 U	0.25 U	**0.44 B**
SILVER	MG/KG	0.029	0.73	1.77	0.029 U	0.028 U	0.028 U	**0.059 B**	0.029 U	0.029 U	0.029 U	0.03 U	0.03 U	0.028 U	0.029 U
THALLIUM	MG/KG	0.445	--	--	**0.46 B**	0.44 U	0.43 U	0.45 U	0.44 U	0.45 U	0.44 U	0.45 U	0.46 U	0.43 U	**1.3**
ZINC	MG/KG	0.165	124	271	**16.3**	**10.9**	**12.5**	**17.1**	**20.3**	**9.7**	**20.2**	**13.1**	**5.5**	**14.5**	**28**
RATIO OF SEM/AVS	--	--	--	--	0.17	0.17	2	1.6	0.26	0.3	0.86	NA	0.09	0.31	0.16

**Source* : MacDonald et al. 1996. Ecotoxicology 5: 253-278.

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
TEL = threshold effects level
PEL = probable effects level
B (inorganic) **=** compound was detected, but below reporting limit (value is estimated).
E = reported value is estimated because of the presence of interference
J (inorganic) **=** compound was detected in method blank
N = spiked sample recovery is not within control limits
U = compound was analyzed but not detected
a = value greater than TEL
b = value greater than PEL

TABLE A-66. CONTINUED

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

					Sample ID										
ANALYTE	**UNITS**	**MDL**	**TEL***	**PEL***	**EB-11C-SED**	**EB-12A-SED**	**EB-12B-SED**	**EB-12C-SED**	**EB-12D-SED**	**EB-13A-SED**	**EB-13B-SED**	**EB-13C-SED**	**EB-14A-SED**	**EB-14B-SED**	**EB-14C-SED**
ANTIMONY	MG/KG	0.312	--	--	0.31 N U	0.32 U	0.31 U	0.32 U	0.31 U	0.31 U	0.31 U	0.32 U	**0.54 B**	0.32 U	0.31 U
ARSENIC	MG/KG	0.322	7.24	41.6	**1.3**	**1.8**	**1.7**	**1.9**	**1.8**	**2.6**	**1.8**	**1.2**	**7**	0.33 U	0.32 U
BERYLLIUM	MG/KG	0.041	--	--	**1.4**	**0.86**	**0.63**	**0.45**	**1.4**	**0.41**	**0.43**	**0.75**	**0.53**	**0.28 B**	**0.23 B**
CADMIUM	MG/KG	0.068	0.676	4.21	0.068 U	0.069 U	0.068 U	0.069 U	0.067 U	0.068 U	0.067 U	0.069 U	0.067 U	0.069 U	0.068 U
CHROMIUM, HEXAVALENT	MG/KG	0.087	--	--	0.1 U	0.085 U	0.088 U	0.085 U	0.11 U	0.084 U	0.082 U	0.096 U	0.088 U	0.085 U	0.095 U
CHROMIUM, TOTAL	MG/KG	0.091	52.3	160.4	**45.4**	**26**	**15.9**	**11.1**	**29.6**	**8**	**9.4**	**18.7**	**19**	**6.3**	**4.7**
COPPER	MG/KG	0.110	18.7	108.2	**21.4 E a**	**14.1**	**7.9**	**5.9**	**19.8 a**	**5.5**	**2.8**	**7.2**	**28.7 a**	**8.1**	**1.9 B**
LEAD	MG/KG	0.155	30.24	112.18	**9.6**	**6**	**3.3**	**2.6**	**6.5**	**2**	**0.88**	**2.6**	**17.6**	**6.9**	**1.7**
MERCURY	MG/KG	0.008	0.13	0.696	**0.034**	**0.036**	**0.023 B**	**0.026 B**	**0.021 B**	**0.033**	0.0077 U	**0.018 B**	**0.023 B**	**0.029 B**	**0.013 B**
NICKEL	MG/KG	0.120	15.9	42.8	**25.2 a**	**14.6**	**8.2**	**8.9**	**25.4 a**	**4.7**	**3.4 B**	**9.7**	**10.3**	**1.7 B**	**1.2 B**
SELENIUM	MG/KG	0.255	--	--	**0.33 B**	0.26 U	**0.27 B**	0.26 U	0.25 U	0.26 U	0.25 U	0.26 U	0.25 U	0.26 U	0.26 U
SILVER		0.029	0.73	1.77	0.029 U	0.029 U	0.029 U	0.03 U	0.029 U	0.029 U	0.029 U	0.03 U	**0.049 B**	0.03 U	0.029 U
THALLIUM	MG/KG	0.445	--	--	**1.4**	**1.1**	**0.61 B**	0.45 U	**0.7 B**	**0.49 B**	**0.44 B**	**0.76 B**	**1.8**	0.45 U	0.45 U
ZINC	MG/KG	0.165	124	271	**58**	**28.4**	**19.6**	**16**	**43.2**	**11.2**	**9.5**	**20.4**	**49.3**	**11.8**	**3.7**
RATIO OF SEM/AVS	--	--	--	--	1	1.1	0.18	0.17	0.48	0.053	0.041	0.11	0.71	0.29	0.07

Source : MacDonald et al. 1996.

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
TEL = threshold effects level
PEL = probable effects level
B (inorganic) **=** compound was detected, but below reporting limit (value is estimated).
NA = constituent was not analyzed for this sample

E = reported value is estimated because of the presence of interference
J (inorganic) **=** compound was detected in method blank
N = spiked sample recovery is not within control limits
U = compound was analyzed but not detected
a = value greater than TEL
b = value greater than PEL

TABLE A-67. PCB CONGENER CONCENTRATIONS (UG/KG) IN PROPOSED MASONVILLE BORROW MATERIAL (JANUARY 2006)
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

					Sample ID											
ANALYTE	**UNITS**	**MDL**	**TEL****	**PEL****	**EB-01A-SED**	**EB-01B-SED**	**EB-01C-SED**	**EB-09A-SED**	**EB-09B-SED**	**EB-09C-SED**	**EB-10A-SED**	**EB-10B-SED**	**EB-10C-SED**	**EB-11A-SED**	**EB-11B-SED**
PCB 8*	UG/KG	0.057	--	--	0.039 U	0.039 U	0.039 U	0.38 U	0.037 U	**0.087 J PG**	0.044 U	0.038 U	0.039 U	0.044 U	0.044 U
PCB 18*	UG/KG	0.038	--	--	0.026 U	0.026 U	0.026 U	0.25 U	0.024 U	0.027 U	0.029 U	0.025 U	0.025 U	0.029 U	0.029 U
PCB 28*	UG/KG	0.062	--	--	0.043 U	0.042 U	0.042 U	0.41 U	0.04 U	0.043 U	0.048 U	0.041 U	0.042 U	0.047 U	0.048 U
PCB 44*	UG/KG	0.057	--	--	0.039 U	0.039 U	0.039 U	0.38 U	0.037 U	0.04 U	**0.075 J PG**	0.038 U	0.038 U	0.044 U	0.044 U
PCB 49	UG/KG	0.059	--	--	0.04 U	0.04 U	0.04 U	0.39 U	0.038 U	0.041 U	0.045 U	0.039 U	0.039 U	0.045 U	0.045 U
PCB 52*	UG/KG	0.055	--	--	0.038 U	0.037 U	0.037 U	0.37 U	**0.051 J PG**	0.039 U	0.042 U	0.037 U	0.037 U	0.042 U	0.043 U
PCB 66*	UG/KG	0.045	--	--	0.031 U	0.031 U	0.031 U	0.3 U	0.029 U	0.032 U	0.035 U	0.03 U	0.03 U	0.035 U	0.035 U
PCB 77*	UG/KG	0.060	--	--	0.041 U	0.041 U	0.041 U	0.4 U	0.039 U	0.042 U	0.046 U	0.04 U	0.041 U	0.046 U	0.047 U
PCB 87	UG/KG	0.051	--	--	0.035 U	0.035 U	0.035 U	0.34 U	0.033 U	0.036 U	0.04 U	0.034 U	0.035 U	0.039 U	0.04 U
PCB 101*	UG/KG	0.056	--	--	0.038 U	0.038 U	0.038 U	0.37 U	0.036 U	0.039 U	0.043 U	0.037 U	0.037 U	0.043 U	0.043 U
PCB 105*	UG/KG	0.058	--	--	0.04 U	0.039 U	0.039 U	0.39 U	0.037 U	0.041 U	0.045 U	0.038 U	0.039 U	0.044 U	0.045 U
PCB 118*	UG/KG	0.057	--	--	**0.077 J**	**0.052 J**	0.038 U	**0.62 J**	**0.066 J**	0.04 U	0.043 U	0.038 U	0.038 U	0.043 U	0.044 U
PCB 126*	UG/KG	0.073	--	--	0.05 U	0.049 U	0.049 U	0.49 U	0.047 U	0.051 U	0.056 U	0.048 U	0.049 U	0.056 U	0.056 U
PCB 128*	UG/KG	0.057	--	--	0.039 U	0.039 U	0.039 U	0.38 U	0.037 U	0.04 U	0.044 U	0.038 U	0.038 U	0.043 U	0.044 U
PCB 138*	UG/KG	0.060	--	--	0.041 U	0.04 U	0.04 U	0.4 U	0.038 U	0.042 U	0.046 U	0.039 U	0.04 U	0.045 U	0.046 U
PCB 153*	UG/KG	0.057	--	--	**0.098 J**	0.039 U	0.039 U	**1.2 J**	**0.12 J**	**0.067 J**	0.044 U	0.038 U	0.039 U	0.044 U	0.044 U
PCB 156	UG/KG	0.056	--	--	0.039 U	0.038 U	0.038 U	0.38 U	0.036 U	0.039 U	0.043 U	0.037 U	0.038 U	0.043 U	0.043 U
PCB 169*	UG/KG	0.054	--	--	0.037 U	0.037 U	0.037 U	0.36 U	0.035 U	0.038 U	0.042 U	0.036 U	0.037 U	0.042 U	0.042 U
PCB 170*	UG/KG	0.057	--	--	0.039 U	0.039 U	0.039 U	**0.5 J**	**0.06 J**	0.04 U	0.044 U	0.038 U	0.038 U	0.044 U	0.044 U
PCB 180*	UG/KG	0.057	--	--	**0.049 J PG**	0.038 U	0.038 U	**0.62 J PG**	**0.073 J PG**	0.04 U	0.043 U	0.038 U	0.038 U	0.043 U	0.044 U
PCB 183	UG/KG	0.055	--	--	0.038 U	0.038 U	0.037 U	0.37 U	0.036 U	0.039 U	0.042 U	0.037 U	0.037 U	0.042 U	0.043 U
PCB 184	UG/KG	0.048	--	--	0.033 U	0.032 U	0.032 U	0.32 U	0.031 U	0.033 U	0.037 U	0.032 U	0.032 U	0.036 U	0.037 U
PCB 187*	UG/KG	0.059	--	--	**0.053 J**	0.04 U	0.04 U	**0.63 J**	**0.072 J**	0.041 U	0.045 U	0.039 U	0.039 U	0.045 U	0.045 U
PCB 195	UG/KG	0.056	--	--	0.038 U	0.038 U	0.038 U	0.37 U	0.036 U	0.039 U	0.043 U	0.037 U	0.038 U	0.043 U	0.043 U
PCB 206	UG/KG	0.056	--	--	0.038 U	0.038 U	0.038 U	0.37 U	0.036 U	0.039 U	0.043 U	0.037 U	0.037 U	0.042 U	0.043 U
PCB 209	UG/KG	0.060	--	--	0.041 U	0.04 U	0.04 U	0.4 U	0.038 U	0.042 U	0.046 U	0.039 U	0.04 U	0.045 U	0.046 U
TOTAL PCBs (ND=0)	UG/KG	--	21.55	188.79	**0.554**	**0.104**	**0**	**7.14**	**0.884**	**0.308**	**0.15**	**0**	**0**	**0**	**0**
TOTAL PCBs (ND=1/2DL)	UG/KG	--	21.55	188.79	**1.095**	**0.757**	**0.691**	**12.02**	**1.32**	**0.943**	**0.889**	**0.676**	**0.684**	**0.779**	**0.787**

*PCB congeners used for Total PCB summation, as per Table 9-3 of the ITM (USEPA/USACE 1998)
***Source*: MacDonald et al. 1996. Ecotoxicology 5: 253-278

NOTE: Shaded and bold values represent detected concentrations
MDL = average method detection limi
TEL = threshold effects leve
PEL = probable effects leve
J = compound was detected, but below the reporting limit (value is estimated
PG = the percent difference between the original and confirmation analysis is greater than 40
U = compound was analyzed but not detecte

TABLE A-67. CONTINUED
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

					Sample ID										
ANALYTE		**MDL**	**TEL****	**PEL****	**EB-11C-SED**	**EB-12A-SED**	**EB-12B-SED**	**EB-12C-SED**	**EB-12D-SED**	**EB-13A-SED**	**EB-13B-SED**	**EB-13C-SED**	**EB-14A-SED**	**EB-14B-SED**	**EB-14C-SED**
PCB 8*	UG/KG	0.057	--	--	0.048 U	0.04 U	0.042 U	0.041 U	**0.17 J PG**	**0.24**	0.039 U	**0.25 PG**	**0.22 PG**	**0.081 J PG**	0.045 U
PCB 18*	UG/KG	0.038	--	--	0.032 U	0.027 U	0.028 U	0.027 U	0.034 U	0.027 U	0.026 U	0.03 U	0.028 U	**0.064 J PG**	0.03 U
PCB 28*	UG/KG	0.062	--	--	0.052 U	0.044 U	0.045 U	0.044 U	0.056 U	0.043 U	0.042 U	0.049 U	0.045 U	0.044 U	0.049 U
PCB 44*	UG/KG	0.057	--	--	0.048 U	0.04 U	0.042 U	0.041 U	0.051 U	0.04 U	0.039 U	**0.18 J PG**	0.042 U	0.04 PG U	0.045 U
PCB 49	UG/KG	0.059	--	--	0.049 U	0.041 U	0.043 U	0.042 U	**0.21 J**	**0.11 J**	0.04 U	**0.16 J**	**0.12 J PG**	**0.13 J**	**0.12 J**
PCB 52*	UG/KG	0.055	--	--	0.046 U	0.039 U	0.04 U	0.039 U	0.049 U	0.038 U	0.038 U	**0.26**	**0.1 J**	0.039 U	0.043 U
PCB 66*	UG/KG	0.045	--	--	0.038 U	0.032 U	0.033 U	0.032 U	0.041 U	0.032 U	0.031 U	0.036 U	0.033 U	0.032 U	0.036 U
PCB 77*	UG/KG	0.060	--	--	0.051 U	0.043 U	0.044 U	0.043 U	0.054 U	0.042 U	0.041 U	0.048 U	0.044 U	0.043 U	0.048 U
PCB 87	UG/KG	0.051	--	--	0.044 U	0.036 U	0.038 U	0.037 U	0.046 U	0.036 U	**0.044 J PG**	**0.13 J PG**	**0.054 J**	0.037 PG U	0.041 U
PCB 101*	UG/KG	0.056	--	--	0.047 U	0.039 U	0.041 U	0.04 U	0.05 U	0.039 U	0.038 U	0.044 U	0.041 U	**0.049 J PG**	0.044 U
PCB 105*	UG/KG	0.058	--	--	0.049 U	0.041 U	0.042 U	0.041 U	0.052 U	0.04 U	**0.048 J PG**	**0.11 J PG**	0.042 U	0.041 U	0.046 U
PCB 118*	UG/KG	0.057	--	--	0.048 U	0.04 U	0.041 U	0.04 U	0.051 U	0.039 U	**0.098 J**	**0.19 J PG**	0.041 U	**0.09 J PG**	0.045 U
PCB 126*	UG/KG	0.073	--	--	0.061 U	0.051 U	0.053 U	0.052 U	0.065 U	0.051 U	0.05 U	0.058 U	0.053 U	0.052 U	0.057 U
PCB 128*	UG/KG	0.057	--	--	0.048 U	0.04 U	0.042 U	0.04 U	0.051 U	0.04 U	0.039 U	**0.066 J PG**	**0.059 J**	0.04 U	0.045 U
PCB 138*	UG/KG	0.060	--	--	0.05 U	0.042 U	0.044 U	0.042 U	0.053 U	0.041 U	0.041 U	0.047 U	0.043 U	0.042 U	0.047 U
PCB 153*	UG/KG	0.057	--	--	0.049 U	0.04 U	0.042 U	0.041 U	0.052 U	0.04 U	0.039 U	**0.13 J**	**0.094 J**	**0.088 J**	0.045 U
PCB 156	UG/KG	0.056	--	--	0.047 U	0.04 U	0.041 U	0.04 U	0.05 U	0.039 U	0.038 U	0.045 U	0.041 U	0.04 U	0.044 U
PCB 169*	UG/KG	0.054	--	--	0.046 U	0.038 U	0.04 U	0.039 U	0.049 U	0.038 U	0.037 U	0.043 U	0.04 U	0.039 U	0.043 U
PCB 170*	UG/KG	0.057	--	--	0.048 U	0.04 U	0.042 U	0.04 U	0.051 U	0.04 U	0.039 U	0.045 U	0.042 U	0.04 U	0.045 U
PCB 180*	UG/KG	0.057	--	--	0.048 U	0.04 U	0.041 U	0.04 U	0.051 U	0.039 U	0.039 U	0.045 U	0.041 U	0.04 U	0.045 U
PCB 183	UG/KG	0.055	--	--	0.047 U	0.039 U	0.04 U	0.039 U	0.049 U	0.039 U	0.038 U	0.044 U	0.04 U	0.039 U	0.044 U
PCB 184	UG/KG	0.048	--	--	0.04 U	0.034 U	0.035 U	0.034 U	0.043 U	0.033 U	0.033 U	0.038 U	0.035 U	0.034 U	0.038 U
PCB 187*	UG/KG	0.059	--	--	0.049 U	0.041 U	0.043 U	0.042 U	0.053 U	0.041 U	0.04 U	0.047 U	0.043 U	0.042 U	0.046 U
PCB 195	UG/KG	0.056	--	--	0.047 U	0.039 U	0.041 U	0.04 U	0.05 U	0.039 U	0.038 U	0.045 U	0.041 U	0.04 U	0.044 U
PCB 206	UG/KG	0.056	--	--	0.047 U	0.039 U	**0.058 J**	0.039 U	**0.088 J**	**0.072 J**	0.038 U	0.044 U	0.04 U	0.039 U	0.044 U
PCB 209	UG/KG	0.060	--	--	0.05 U	0.042 U	0.044 U	**0.058 J PG**	0.053 U	0.041 U	0.041 U	0.047 U	0.043 U	0.042 U	0.047 U
TOTAL PCBs (ND=0)	UG/KG	--	21.55	188.79	**0**	**0**	**0**	**0**	**0.34**	**0.48**	**0.292**	**2.372**	**0.946**	**0.744**	**0**
TOTAL PCBs (ND=1/2DL)	UG/KG	--	21.55	188.79	**0.858**	**0.717**	**0.745**	**0.724**	**1.203**	**1.15**	**0.91**	**2.864**	**1.524**	**1.278**	**0.804**

*PCB congeners used for Total PCB summation, as per Table 9-3 of the ITM (USEPA/USACE 1998)
***Source*: MacDonald et al. 1996. Ecotoxicology 5: 253-278

NOTE: Shaded and bold values represent detected concentrations
MDL = average method detection limi
TEL = threshold effects leve
PEL = probable effects leve
J = compound was detected, but below the reporting limit (value is estimated
PG = the percent difference between the original and confirmation analysis is greater than 40
U = compound was analyzed but not detecte

TABLE A-68. PCB AROCLOR CONCENTRATIONS (UG/KG) IN PROPOSED MASONVILLE BORROW MATERIAL (JANUARY 2006)

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

			Sample ID										
ANALYTE	**UNITS**	**MDL**	**EB-01A-SED**	**EB-01B-SED**	**EB-01C-SED**	**EB-09A-SED**	**EB-09B-SED**	**EB-09C-SED**	**EB-10A-SED**	**EB-10B-SED**	**EB-10C-SED**	**EB-11A-SED**	**EB-11B-SED**
AROCLOR 1016	UG/KG	25.727	26 U	25 U	25 U	26 U	25 U	26 U	25 U	26 U	26 U	25 U	25 U
AROCLOR 1221	UG/KG	12.500	12 U	12 U	12 U	13 U	12 U	13 U	12 U	13 U	13 U	12 U	12 U
AROCLOR 1232	UG/KG	15.364	15 U	15 U	15 U	16 U	15 U	16 U	15 U	16 U	16 U	15 U	15 U
AROCLOR 1242	UG/KG	11.000	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U
AROCLOR 1248	UG/KG	11.955	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	11 U	12 U
AROCLOR 1254	UG/KG	4.309	**9.3 J**	4.2 U	4.2 U	**8.6 J**	4.2 U	4.4 U	4.2 U	4.4 U	4.4 U	4.2 U	4.2 U
AROCLOR 1260	UG/KG	3.586	3.6 U	3.5 U	3.5 U	3.7 U	3.5 U	3.6 U	3.5 U	3.6 U	3.7 U	3.5 U	3.5 U

There are no TEL and PEL values for PCB Aroclors

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
U = compound was analyzed but not detected
J = compound was detected, but below the reporting limit (value is estimated)

TABLE A-68. CONTINUED

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

			Sample ID										
ANALYTE	**UNITS**	**MDL**	**EB-11C-SED**	**EB-12A-SED**	**EB-12B-SED**	**EB-12C-SED**	**EB-12D-SED**	**EB-13A-SED**	**EB-13B-SED**	**EB-13C-SED**	**EB-14A-SED**	**EB-14B-SED**	**EB-14C-SED**
AROCLOR 1016	UG/KG	25.727	26 U	26 U	26 U	26 U	26 U	26 U	26 U	26 U	26 U	26 U	26 U
AROCLOR 1221	UG/KG	12.500	13 U	13 U	12 U	13 U	12 U	13 U	12 U	13 U	12 U	13 U	13 U
AROCLOR 1232	UG/KG	15.364	15 U	16 U	15 U	16 U	15 U	15 U	15 U	16 U	15 U	16 U	15 U
AROCLOR 1242	UG/KG	11.000	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U
AROCLOR 1248	UG/KG	11.955	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
AROCLOR 1254	UG/KG	4.309	4.3 U	4.4 U	4.3 U	4.4 U	4.3 U	4.3 U	4.3 U	**9.3 J**	4.3 U	4.4 U	4.3 U
AROCLOR 1260	UG/KG	3.586	3.6 U	3.6 U	3.6 U	3.7 U	3.6 U	3.6 U	3.5 U	3.6 U	3.6 U	3.7 U	3.6 U

There are no TEL and PEL values for PCB Aroclors

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
U = compound was analyzed but not detected
J = compound was detected, but below the reporting limit (value is estimated)

TABLE A-69. PAH CONCENTRATIONS (UG/KG) IN PROPOSED MASONVILLE BORROW MATERIAL (JANUARY 2006)
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLANI

					Sample ID										
ANALYTE	**UNITS**	**MDL**	**TEL***	**PEL***	**EB-01A-SED**	**EB-01B-SED**	**EB-01C-SED**	**EB-09A-SED**	**EB-09B-SED**	**EB-09C-SED**	**EB-10A-SED**	**EB-10B-SED**	**EB-10C-SED**	**EB-11A-SED**	**EB-11B-SED**
1-METHYLNAPHTHALENE	UG/KG	1.977	--	--	2 U	1.9 U	1.9 U	2 U	2 U	2 U	**3.6 J**	2 U	2 U	1.9 U	1.9 U
2-METHYLNAPHTHALENE	UG/KG	2.255	20.21	201.28	2.2 U	2.2 U	2.2 U	**2.3 J**	2.2 U	2.3 U	**5.4 J**	2.3 U	2.3 U	**3.3 J**	2.2 U
ACENAPHTHENE	UG/KG	2.050	6.71	88.9	**2.1 J**	**7.1 a**	2 U	**2.9 J**	2 U	2.1 U	**12a**	2.1 U	2.1 U	**2.2 J**	2 U
ACENAPHTHYLENE	UG/KG	2.041	5.87	127.87	2 U	**6.4 a**	2 U	2.1 U	2 U	2.1 U	**14 a**	2.1 U	2.1 U	2 U	2 U
ANTHRACENE	UG/KG	1.673	46.85	245	**2.5 J**	**15**	**1.6 J**	**4.8 J**	**4.4 J**	1.7 U	**20**	**1.7 J**	1.7 U	**2.6 J**	**1.6 J**
BENZO(A)ANTHRACENE	UG/KG	1.536	74.83	692.53	**3.1 J**	**71**	**2.4 J**	**12**	**12**	1.6 U	**34**	**2.3 J**	1.6 U	**4.9 J**	**2.9 J**
BENZO(A)PYRENE	UG/KG	2.059	88.81	763.22	**3 J**	**190 a**	**2.1 J**	**11**	**10**	2.1 U	**28**	2.1 U	2.1 U	**4.6 J**	**2.5 J**
BENZO(B)FLUORANTHENE	UG/KG	1.145	--	--	**3.4 J**	**200**	**2.5 J**	**13**	**12**	**1.4 J**	**25**	**2.1 J**	1.2 U	**5.3 J**	**4.6 J**
BENZO(GHI)PERYLENE	UG/KG	1.200	--	--	**2.6 J**	**180**	**2 J**	**7.9**	**7.5**	**1.4 J**	**16**	**1.7 J**	1.2 U	**3.7 J**	**2.6 J**
BENZO(K)FLUORANTHENE	UG/KG	2.314	--	--	2.3 U	**60**	2.3 U	**4.2 J**	**3.8 J**	2.3 U	**7**	2.3 U	2.4 U	2.2 U	2.3 U
CHRYSENE	UG/KG	1.395	107.77	845.98	**3.1 J**	**80**	**2.4 J**	**12**	**11**	1.4 U	**29**	**1.9 J**	1.4 U	**4.6 J**	**2.7 J**
DIBENZO(A,H)ANTHRACENE	UG/KG	1.395	6.22	134.61	1.4 U	**37 a**	1.4 U	**2.2 J**	**1.9 J**	1.4 U	**4.5 J**	1.4 U	1.4 U	1.3 U	1.4 U
FLUORANTHENE	UG/KG	2.177	112.82	1493.54	**6.8**	**68**	**4.8 J**	**19**	**16**	2.2 U	**48**	**3.4 J**	2.2 U	**8.2**	**4 J**
FLUORENE	UG/KG	2.177	21.17	144.35	2.2 U	**3.2 J**	2.1 U	**3.5 J**	**2.2 J**	2.2 U	**7**	2.2 U	2.2 U	**2.6 J**	2.1 U
INDENO(1,2,3-CD)PYRENE	UG/KG	1.300	--	--	**1.8 J**	**130**	**1.5 J**	**6.2 J**	**6 J**	1.3 U	**12**	1.3 U	1.3 U	**2.9 J**	**1.7 J**
NAPHTHALENE	UG/KG	2.309	34.57	390.64	**2.3 J**	**2.6 J**	**3 J**	**2.5 J**	2.3 U	2.3 U	**9**	2.3 U	2.4 U	**27**	2.3 U
PHENANTHRENE	UG/KG	1.755	86.68	543.53	**8.2**	**15**	**6.6**	**19**	**12**	**4.9 J**	**35**	**6.3 J**	**5.3 J**	**9.9**	**6.6**
PYRENE	UG/KG	1.250	152.66	1397.6	**7.7**	**110**	**5.5 J**	**25**	**18**	**2.2 J**	**77**	**4.9 J**	**2.5 J**	**11**	**6 J**
TOTAL PAHs (ND=0)	UG/KG		1684.06	16770.4	**46.6**	**1175.3**	**34.4**	**147.5**	**116.8**	**9.9**	**386.5**	**24.3**	**7.8**	**92.8**	**35.2**
TOTAL PAHs (ND=1/2DL)	UG/KG		1684.06	16770.4	**52.65**	**1177.35**	**41.35**	**149.55**	**122.05**	**23.4**	**386.5**	**34.35**	**22.6**	**96.5**	**43.3**

**Source* : MacDonald et al. 1996. Ecotoxicology 5: 253-278

NOTE: Shaded and bold values represent detected concentrations
MDL = average method detection limi
TEL = threshold effects level
PEL = probable effects level
U = compound was analyzed but not detected

a = value greater than TEL
b = value greater than PEL

TABLE A-69. CONTINUED
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLANI

					Sample ID										
ANALYTE	**UNITS**	**MDL**	**TEL****	**PEL****	**EB-11C-SED**	**EB-12A-SED**	**EB-12B-SED**	**EB-12C-SED**	**EB-12D-SED**	**EB-13A-SED**	**EB-13B-SED**	**EB-13C-SED**	**EB-14A-SED**	**EB-14B-SED**	**EB-14C-SED**
1-METHYLNAPHTHALENE	UG/KG	1.977	--	--	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
2-METHYLNAPHTHALENE	UG/KG	2.255	20.21	201.28	2.3 U	2.3 U	2.3 U	2.3 U	2.2 U	**2.6 J**	2.2 U	2.3 U	2.2 U	2.3 U	2.3 U
ACENAPHTHENE	UG/KG	2.050	6.71	88.9	2.1 U	2.1 U	2 U	2.1 U	2 U	2.1 U	2 U	2.1 U	**5.4 J**	2.1 U	2.1 U
ACENAPHTHYLENE	UG/KG	2.041	5.87	127.87	2 U	2.1 U	2 U	2.1 U	2 U	2.1 U	2 U	2.1 U	2 U	2.1 U	2 U
ANTHRACENE	UG/KG	1.673	46.85	245	1.7 U	1.7 U	1.7 U	**2.8 J**	1.7 U	**2.5 J**	1.7 U	1.7 U	**2.3 J**	**2.6 J**	**5.3 J**
BENZO(A)ANTHRACENE	UG/KG	1.536	74.83	692.53	1.5 U	**2.1 J**	1.5 U	**6.4 J**	1.5 U	**4.9 J**	1.5 U	1.6 U	**3.3 J**	**6 J**	**14**
BENZO(A)PYRENE	UG/KG	2.059	88.81	763.22	2.1 U	2.1 U	2.1 U	**5.8 J**	2 U	**4.5 J**	2 U	2.1 U	**2.8 J**	**6.2 J**	**16**
BENZO(B)FLUORANTHENE	UG/KG	1.145	--	--	1.1 U	**2.4 J**	1.1 U	**8.4**	**1.8 J**	**4.7 J**	1.1 U	1.2 U	**4 J**	**7.5**	**19**
BENZO(GHI)PERYLENE	UG/KG	1.200	--	--	1.2 U	**1.6 J**	1.2 U	**5.5 J**	1.2 U	**4.2 J**	1.2 U	**1.3 J**	**2.7 J**	**5.3 J**	**6.5**
BENZO(K)FLUORANTHENE	UG/KG	2.314	--	--	2.3 U	2.3 U	2.3 U	**2.7 J**	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	**2.8 J**	**9.3**
CHRYSENE	UG/KG	1.395	107.77	845.98	1.4 U	**1.9 J**	1.4 U	**6.9**	1.4 U	**5 J**	1.4 U	1.4 U	**3.7 J**	**6.6 J**	**24**
DIBENZO(A,H)ANTHRACENE		1.395	6.22	134.61	1.4 U	1.4 U	1.4 U	**1.4 J**	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	**2.2 J**
FLUORANTHENE	UG/KG	2.177	112.82	1493.54	2.2 U	**3.4 J**	2.2 U	**12**	2.2 U	**7.8**	2.2 U	2.2 U	**9**	**13**	**3 J**
FLUORENE	UG/KG	2.177	21.17	144.35	2.2 U	2.2 U	2.2 U	**2.2 J**	2.2 U	2.2 U	2.2 U	2.2 U	**2.9 J**	2.2 U	2.2 U
INDENO(1,2,3-CD)PYRENE	UG/KG	1.300	--	--	1.3 U	**1.3 J**	1.3 U	**4.4 J**	1.3 U	**3.1 J**	1.3 U	1.3 U	**2 J**	**3.8 J**	**6.5**
NAPHTHALENE	UG/KG	2.309	34.57	390.64	2.3 U	2.3 U	2.3 U	2.4 U	2.3 U	**6.9**	2.3 U	2.3 U	2.3 U	2.4 U	2.3 U
PHENANTHRENE	UG/KG	1.755	86.68	543.53	**2.5 J**	**5 J**	**3.1 J**	**12**	**3.9 J**	**8.1**	**4.1 J**	**3.4 J**	**6.5**	**6 J**	**6.3 J**
PYRENE	UG/KG	1.250	152.66	1397.6	1.3 U	**3.5 J**	1.2 U	**14**	1.2 U	**11**	1.2 U	**2.3 J**	**11**	**17**	**2.7 J**
TOTAL PAHs (ND=0)	UG/KG		1684.06	16770.4	**2.5**	**21.2**	**3.1**	**84.5**	**5.7**	**65.3**	**4.1**	**7**	**55.6**	**76.8**	**114.8**
TOTAL PAHs (ND=1/2DL)	UG/KG		1684.06	16770.4	**17.7**	**31.45**	**18.2**	**89.95**	**20.15**	**71.35**	**19.1**	**21.1**	**61.7**	**84.05**	**121.25**

***Source* : MacDonald et al. 1996. Ecotoxicology 5: 253-278

NOTE: Shaded and bold values represent detected concentrations
MDL = average method detection limi
TEL = threshold effects level
PEL = probable effects level
U = compound was analyzed but not detected

a = value greater than TEL
b = value greater than PEL

TABLE A-70. CHLORINATED PESTICIDE CONCENTRATIONS (UG/KG) IN PROPOSED MASONVILLE BORROW MATERIAL (JANUARY 2006)
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

					Sample ID										
ANALYTE	**UNITS**	**MDL**	**TEL***	**PEL***	**EB-01A-SED**	**EB-01B-SED**	**EB-01C-SED**	**EB-09A-SED**	**EB-09B-SED**	**EB-09C-SED**	**EB-10A-SED**	**EB-10B-SED**	**EB-10C-SED**	**EB-11A-SED**	**EB-11B-SED**
4,4'-DDD	UG/KG	0.160	1.22	7.81	0.16 U	0.16 U	0.16 U	**0.51 J**	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
4,4'-DDE	UG/KG	0.204	2.07	374.17	**0.26 J PG**	0.2 U	0.2 U	**0.37 J**	0.2 U	0.21 U	0.2 U	0.21 U	0.21 U	0.2 U	0.2 U
4,4'-DDT	UG/KG	0.177	1.19	4.77	**0.42 J**	0.17 U	0.17 U	**0.22 J PG**	0.17 U	0.18 U	0.17 U	0.18 U	0.18 U	0.17 U	0.17 U
ALDRIN	UG/KG	0.205	--	--	0.2 U	0.2 U	0.2 U	0.21 U	0.2 U	0.21 U	0.2 U	0.21 U	0.21 U	0.2 U	0.2 U
ALPHA-BHC	UG/KG	0.140	--	--	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
BETA-BHC	UG/KG	0.216	--	--	0.21 U	0.21 U	0.21 U	0.22 U	0.21 U	0.22 U	0.21 U	0.22 U	0.22 U	0.21 U	0.21 U
CHLORDANE (TECHNICAL	UG/KG	0.758	2.26	4.79	0.75 U c	0.74 U c	0.74 U c	0.77 U c	0.75 U c	0.77 U c	0.74 U c	0.77 U c	0.78 U c	0.74 U c	0.75 U c
CHLOROBENSIDE	UG/KG	0.671	--	--	0.66 U	0.66 U	0.66 U	0.68 U	0.66 U	0.68 U	0.66 U	0.68 U	0.69 U	0.65 U	0.66 U
DCPA	UG/KG	0.441	--	--	0.44 U	0.43 U	0.43 U	0.45 U	0.43 U	0.45 U	0.43 U	0.45 U	0.45 U	0.43 U	0.43 U
DELTA-BHC	UG/KG	0.179	--	--	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U	0.17 U	0.18 U
DIELDRIN	UG/KG	0.158	0.715	4.3	0.16 U c	0.15 U c	0.15 U c	0.16 U c	0.16 U c	0.16 U c	0.15 U c	0.16 U c	0.16 U c	0.15 U c	0.16 U c
ENDOSULFAN I	UG/KG	0.160	--	--	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.15 U	0.16 U
ENDOSULFAN II	UG/KG	0.254	--	--	0.25 U	0.25 U	0.25 U	0.26 U	0.25 U	0.26 U	0.25 U	0.26 U	0.26 U	0.25 U	0.25 U
ENDOSULFAN SULFATE	UG/KG	0.225	--	--	0.22 U	0.22 U	0.22 U	0.23 U	0.22 U	0.23 U	0.22 U	0.23 U	0.23 U	0.22 U	0.22 U
ENDRIN	UG/KG	0.162	--	--	0.16 U	0.16 U	0.16 U	0.17 U	0.16 U	0.16 U	0.16 U	0.16 U	0.17 U	0.16 U	0.16 U
ENDRIN ALDEHYDE	UG/KG	0.354	--	--	0.35 U	0.35 U	0.35 U	0.36 U	0.35 U	0.36 U	0.35 U	0.36 U	0.36 U	0.34 U	0.35 U
GAMMA-BHC (LINDANE)	UG/KG	0.139	0.32	0.99	0.14 U	0.14 U	0.13 U	0.14 U	0.14 U	0.14 U	0.13 U	0.14 U	0.14 U	0.13 U	0.14 U
HEPTACHLOR	UG/KG	0.158	--	--	0.16 U	0.15 U	0.15 U	0.16 U	0.16 U	0.16 U	0.15 U	0.16 U	0.16 U	0.15 U	0.15 U
HEPTACHLOR EPOXIDE	UG/KG	0.199	--	--	0.2 U	0.2 U	0.19 U	0.2 U	0.2 U	0.2 U	0.19 U	0.2 U	0.2 U	0.19 U	0.2 U
METHOXYCHLOR	UG/KG	0.358	--	--	0.35 U	0.35 U	0.35 U	0.37 U	0.35 U	0.36 U	0.35 U	0.36 U	0.37 U	0.35 U	0.35 U
MIREX	UG/KG	0.223	--	--	0.22 U	0.22 U	0.22 U	0.23 U	0.22 U	0.22 U	0.22 U	0.23 U	0.23 U	0.22 U	0.22 U
TOXAPHENE	UG/KG	2.214	--	--	2.2 U	2.2 U	2.2 U	2.3 U	2.2 U	2.2 U	2.2 U	2.2 U	2.3 U	2.1 U	2.2 U

**Source*: MacDonald et al. 1996. Ecotoxicology 5: 253-278.

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
TEL = threshold effects level
PEL = probable effects level
J = compound was detected, but below the reporting limit (value is estimated)
PG = the percent difference between the original and confirmation analysis is greater than 40%
U = compound was analyzed but not detected

TABLE A-70. CONTINUED
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

					Sample ID										
ANALYTE	**UNITS**	**MDL**	**TEL***	**PEL***	**EB-11C-SED**	**EB-12A-SED**	**EB-12B-SED**	**EB-12C-SED**	**EB-12D-SED**	**EB-13A-SED**	**EB-13B-SED**	**EB-13C-SED**	**EB-14A-SED**	**EB-14B-SED**	**EB-14C-SED**
4,4'-DDD	UG/KG	0.160	1.22	7.81	0.16 U	0.16 U	0.16 U	**0.87 J PG**	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
4,4'-DDE	UG/KG	0.204	2.07	374.17	0.2 U	0.21 U	0.2 U	**0.37 J**	0.2 U	0.2 U	0.2 U	0.21 U	0.2 U	0.21 U	0.2 U
4,4'-DDT	UG/KG	0.177	1.19	4.77	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U	0.18 U	0.18 U
ALDRIN	UG/KG	0.205	--	--	0.21 U	0.21 U	0.21 U	0.21 U	0.2 U	0.21 U	0.2 U	0.21 U	0.2 U	0.21 U	0.21 U
ALPHA-BHC	UG/KG	0.140	--	--	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
BETA-BHC	UG/KG	0.216	--	--	0.22 U	0.22 U	0.22 U	0.22 U	0.21 U	0.22 U	0.21 U	0.22 U	0.22 U	0.22 U	0.22 U
CHLORDANE (TECHNICAL)		0.758	2.26	4.79	0.76 U c	0.77 U c	0.75 U c	0.78 U c	0.75 U c	0.76 U c	0.75 U c	0.77 U c	0.75 U c	0.78 U c	0.76 U c
CHLOROBENSIDE	UG/KG	0.671	--	--	0.67 U	0.68 U	0.67 U	0.69 U	0.66 U	0.68 U	0.66 U	0.68 U	0.67 U	0.69 U	0.67 U
DCPA	UG/KG	0.441	--	--	0.44 U	0.45 U	0.44 U	0.45 U	0.44 U	0.44 U	0.44 U	0.45 U	0.44 U	0.45 U	0.44 U
DELTA-BHC	UG/KG	0.179	--	--	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
DIELDRIN	UG/KG	0.158	0.715	4.3	0.16 U c	0.16 U c	0.16 U c	0.16 U c	0.16 U c	0.16 U c	0.16 U c	0.16 U c	0.16 U c	0.16 U c	0.16 U c
ENDOSULFAN I	UG/KG	0.160	--	--	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
ENDOSULFAN II	UG/KG	0.254	--	--	0.25 U	0.26 U	0.25 U	0.26 U	0.25 U	0.26 U	0.25 U	0.26 U	0.25 U	0.26 U	0.25 U
ENDOSULFAN SULFATE	UG/KG	0.225	--	--	0.22 U	0.23 U	0.22 U	0.23 U	0.22 U	0.23 U	0.22 U	0.23 U	0.22 U	0.23 U	0.23 U
ENDRIN	UG/KG	0.162	--	--	0.16 U	0.16 U	0.16 U	0.17 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.17 U	0.16 U
ENDRIN ALDEHYDE	UG/KG	0.354	--	--	0.35 U	0.36 U	0.35 U	0.36 U	0.35 U	0.36 U	0.35 U	0.36 U	0.35 U	0.36 U	0.35 U
GAMMA-BHC (LINDANE)	UG/KG	0.139	0.32	0.99	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
HEPTACHLOR	UG/KG	0.158	--	--	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
HEPTACHLOR EPOXIDE	UG/KG	0.199	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
METHOXYCHLOR	UG/KG	0.358	--	--	0.36 U	0.36 U	0.36 U	0.37 U	0.35 U	0.36 U	0.35 U	0.36 U	0.36 U	0.37 U	0.36 U
MIREX	UG/KG	0.223	--	--	0.22 U	0.23 U	0.22 U	0.23 U	0.22 U	0.22 U	0.22 U	0.23 U	0.22 U	0.23 U	0.22 U
TOXAPHENE	UG/KG	2.214	--	--	2.2 U	2.2 U	2.2 U	2.3 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.3 U	2.2 U

**Source*: MacDonald et al. 1996. Ecotoxicology 5: 253-278.

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
TEL = threshold effects level
PEL = probable effects level
J = compound was detected, but below the reporting limit (value is estimated)
PG = the percent difference between the original and confirmation analysis is greater than 40%
U = compound was analyzed but not detected

TABLE A-71. ORGANOPHOSPHORUS PESTICIDE CONCENTRATIONS (UG/KG) IN PROPOSED MASONVILLE BORROW MATERIAL (JANUARY 2006)
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

			Sample ID										
ANALYTE	**UNITS**	**MDL**	**EB-01A-SED**	**EB-01B-SED**	**EB-01C-SED**	**EB-09A-SED**	**EB-09B-SED**	**EB-09C-SED**	**EB-10A-SED**	**EB-10B-SED**	**EB-10C-SED**	**EB-11A-SED**	**EB-11B-SED**
AZINPHOS METHYL	UG/KG	8.168	8.1 U	8 U	8 U	8.3 U	8 U	8.3 U	8 U	8.3 U	8.4 U	7.9 U	8 U
DEMETON	UG/KG	15.409	15 U	15 U	15 U	16 U	15 U	16 U	15 U	16 U	16 U	15 U	15 U
MALATHION	UG/KG	5.677	5.6 U	5.6 U	5.6 U	5.8 U	5.6 U	5.7 U	5.6 U	5.8 U	5.8 U	5.5 U	5.6 U
METHYL PARATHION	UG/KG	5.782	5.7 U	5.7 U	5.7 U	5.9 U	5.7 U	5.8 U	5.7 U	5.9 U	5.9 U	5.6 U	5.7 U
PARATHION	UG/KG	7.027	7 U	6.9 U	6.9 U	7.2 U	6.9 U	7.1 U	6.9 U	7.1 U	7.2 U	6.8 U	6.9 U

There are no TEL and PEL values for organophosphorus pesticides
NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
U = compound was analyzed but not detected

TABLE A-71. CONTINUED
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

			Sample ID										
ANALYTE	**UNITS**	**MDL**	**EB-11C-SED**	**EB-12A-SED**	**EB-12B-SED**	**EB-12C-SED**	**EB-12D-SED**	**EB-13A-SED**	**EB-13B-SED**	**EB-13C-SED**	**EB-14A-SED**	**EB-14B-SED**	**EB-14C-SED**
AZINPHOS METHYL	UG/KG	8.168	8.2 U	8.3 U	8.1 U	8.4 U	8.1 U	8.2 U	8.1 U	8.3 U	8.1 U	8.4 U	8.2 U
DEMETON	UG/KG	15.409	15 U	16 U	15 U	16 U	15 U	16 U	15 U	16 U	15 U	16 U	15 U
MALATHION	UG/KG	5.677	5.7 U	5.8 U	5.6 U	5.8 U	5.6 U	5.7 U	5.6 U	5.8 U	5.6 U	5.8 U	5.7 U
METHYL PARATHION	UG/KG	5.782	5.8 U	5.9 U	5.8 U	5.9 U	5.7 U	5.8 U	5.7 U	5.9 U	5.7 U	5.9 U	5.8 U
PARATHION	UG/KG	7.027	7 U	7.1 U	7 U	7.2 U	7 U	7.1 U	6.9 U	7.1 U	7 U	7.2 U	7.1 U

There are no TEL and PEL values for organophosphorus pesticides
NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
U = compound was analyzed but not detected

TABLE A-72. DIOXION AND FURAN CONGENER CONCENTRATIONS (PG/G) IN PROPOSED MASONVILLE BORROW MATERIAL (JANUARY 2006)

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

				Sample ID										
ANALYTE	**UNITS**	**RL**	**TEF***	**EB-01A-SED**	**EB-01B-SED**	**EB-01C-SED**	**EB-09A-SED**	**EB-09B-SED**	**EB-09C-SED**	**EB-10A-SED**	**EB-10B-SED**	**EB-10C-SED**	**EB-11A-SED**	**EB-11B-SED**
2,3,7,8-TCDD	PG/G	1.209	1	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.2 U	1.3 U	1.1 U	1.1 U	1.3 U	1.3 U
1,2,3,7,8-PECDD	PG/G	6.018	0.5	5.7 U	5.6 U	5.6 U	**0.16 Q J**	5.3 U	5.8 U	6.4 U	5.5 U	5.6 U	6.3 U	6.4 U
1,2,3,4,7,8-HXCDD	PG/G	6.018	0.1	5.7 U	5.6 U	**0.26 J**	**0.13 Q J**	5.3 U	5.8 U	**0.12 Q J**	5.5 U	5.6 U	6.3 U	6.4 U
1,2,3,6,7,8-HXCDD	PG/G	6.018	0.1	**0.13 Q J**	**0.069 Q J**	**0.53 J**	**0.6 J**	**0.12 J**	5.8 U	**0.31 J**	5.5 U	5.6 U	**0.22 Q J**	**0.39 J**
1,2,3,7,8,9-HXCDD	PG/G	6.018	0.1	**0.3 J**	**0.16 Q J**	**1.5 J**	**0.5 J**	**0.17 Q J**	**0.43 J**	**1.8 Q J**	**0.26 Q J**	**0.13 J**	**0.83 J**	**1.2 Q J**
1,2,3,4,6,7,8-HPCDD	PG/G	6.018	0.01	**3 J**	**1.9 J**	**20**	**10**	**3 J**	**4.7 J**	**20**	**1.8 J**	**1 J**	**8.5**	**14**
OCDD	PG/G	12.091	0.001	**77 B**	**42 B**	**320 B**	**210 B**	**110 B**	**110 B**	**1000 B**	**59 B**	**28 B**	**320 B**	**360 B**
2,3,7,8-TCDF	PG/G	1.209	0.1	1.1 U	1.1 U	1.1 U	**0.64 Q J**	1.1 U	1.2 U	1.3 U	1.1 U	1.1 U	1.3 U	1.3 U
1,2,3,7,8-PECDF	PG/G	6.018	0.05	5.7 U	5.6 U	5.6 U	5.5 U	5.3 U	5.8 U	6.4 U	5.5 U	5.6 U	6.3 U	6.4 U
2,3,4,7,8-PECDF	PG/G	6.018	0.5	5.7 U	5.6 U	5.6 U	**0.23 J**	5.3 U	5.8 U	6.4 U	5.5 U	5.6 U	6.3 U	6.4 U
1,2,3,4,7,8-HXCDF	PG/G	6.018	0.1	**0.1 J**	5.6 U	5.6 U	**0.45 J**	**0.15 Q J**	5.8 U	6.4 U	5.5 U	5.6 U	6.3 U	6.4 U
1,2,3,6,7,8-HXCDF	PG/G	6.018	0.1	**0.08 Q J**	**0.046 Q J**	**0.13 Q J**	**0.66 Q J**	**0.098 J**	5.8 U	6.4 U	5.5 U	5.6 U	**0.1 J**	6.4 U
2,3,4,6,7,8-HXCDF	PG/G	6.018	0.1	**0.058 J**	5.6 U	**0.034 Q J**	**0.15 J**	5.3 U	5.8 U	6.4 U	5.5 U	5.6 U	6.3 U	6.4 U
1,2,3,7,8,9-HXCDF	PG/G	6.018	0.1	5.7 U	5.6 U	5.6 U	5.5 U	5.3 U	5.8 U	6.4 U	5.5 U	5.6 U	6.3 U	6.4 U
1,2,3,4,6,7,8-HPCDF	PG/G	6.018	0.01	**0.63 J**	**0.48 J**	**0.36 J**	**3.2 J**	**0.86 J**	**0.41 J**	**0.17 Q J**	5.5 U	**0.077 J**	**0.35 J**	6.4 U
1,2,3,4,7,8,9-HPCDF	PG/G	6.018	0.01	5.7 U	5.6 U	5.6 U	**0.28 J**	5.3 U	5.8 U	6.4 U	5.5 U	5.6 U	6.3 U	6.4 U
OCDF	PG/G	12.091	0.001	**0.87 B J**	**1.4 B J**	**0.57 B J**	**8.3 B J**	**1.7 B J**	**1.1 B J**	**0.51 Q B J**	11 U	**0.18 Q B J**	**0.66 B J**	13 U
DIOXIN TEQ (ND=0)	PG/G	--	--	**0.1031**	**0.0513**	**0.449**	**0.7228**	**0.0924**	**0.0941**	**0.4247**	**0.044**	**0.02377**	**0.2035**	**0.299**
DIOXIN TEQ (ND=1/2DL)	PG/G	--	--	**5.7241**	**6.1443**	**5.982**	**1.6853**	**5.6264**	**7.0181**	**7.4117**	**6.61705**	**6.67677**	**7.0925**	**7.63865**

***** *Source:* USEPA 1989. *1989 Update to the Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-Dioxins and Dibenzofurans (CDDs and CDFs)*

There are no TEL and PEL values for dioxin and furan congeners

NOTE: Shaded and bold values represent detected concentrations.

RL = average reporting limit

TEF = toxicity equivalency factor

TEQ = toxicity equivalency quotient

J = compound was detected, but below the reporting limit (value is estimated)

JA = the analyte was positively identified, but the quantitation is an estimate

U = compound was analyzed but not detected

Q = estimated maximum possible concentration.

TABLE A-72. CONTINUED

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

				Sample ID									
ANALYTE	**UNITS**	**RL**	**TEF***	**EB-11C-SED**	**EB-12A-SED**	**EB-12B-SED**	**EB-12C-SED**	**EB-12D-SED**	**EB-13A-SED**	**EB-13B-SED**	**EB-13C-SED**	**EB-14A-SED**	**EB-14B-SED**	**EB-14C-SED**
2,3,7,8-TCDD	PG/G	1.209	1	1.4 U	1.2 U	1.2 U	1.2 U	1.5 U	1.2 U	1.1 U	1.3 U	1.2 U	1.2 U	1.3 U
1,2,3,7,8-PECDD	PG/G	6.018	0.5	**0.2 Q J**	5.8 U	6.1 U	5.9 U	7.4 U	5.8 U	5.7 U	6.6 U	6 U	5.9 U	6.5 U
1,2,3,4,7,8-HXCDD	PG/G	6.018	0.1	**0.44 J**	5.8 U	**0.18 Q J**	**0.11 Q J**	7.4 U	5.8 U	5.7 U	6.6 U	**0.58 Q J**	5.9 U	6.5 U
1,2,3,6,7,8-HXCDD	PG/G	6.018	0.1	**2.8 J**	**0.81 B J**	**2.8 B J**	**0.52 B J**	7.4 U	5.8 U	5.7 U	**0.43 Q B J**	**1.1 Q B J**	**0.36 Q B J**	6.5 U
1,2,3,7,8,9-HXCDD	PG/G	6.018	0.1	**3.3 J**	**1 J**	**1.9 J**	**1 J**	**1.2 J**	5.8 U	5.7 U	**1.7 J**	**8**	**2.1 J**	**0.84 J**
1,2,3,4,6,7,8-HPCDD	PG/G	6.018	0.01	**31**	**18 B**	**41 B**	**11 B**	**11 B**	**3.8 B J**	**0.67 Q B J**	**13 B**	**88 B**	**20 B**	**8.3 B**
OCDD	PG/G	12.091	0.001	**450 B**	**440 B**	**570 B**	**240 B**	**230 B**	**120 B**	**22 B**	**160 B**	**1600 B**	**340 B**	**210 B**
2,3,7,8-TCDF	PG/G	1.209	0.1	1.4 U	1.2 U	1.2 U	1.2 U	1.5 U	1.2 U	1.1 U	1.3 U	1.2 U	1.2 U	1.3 U
1,2,3,7,8-PECDF		6.018	0.05	7 U	5.8 U	6.1 U	5.9 U	7.4 U	5.8 U	5.7 U	6.6 U	6 U	5.9 U	6.5 U
2,3,4,7,8-PECDF	PG/G	6.018	0.5	7 U	5.8 U	6.1 U	5.9 U	7.4 U	5.8 U	5.7 U	6.6 U	6 U	5.9 U	6.5 U
1,2,3,4,7,8-HXCDF	PG/G	6.018	0.1	7 U	**0.11 Q B J**	6.1 U	5.9 U	7.4 U	5.8 U	5.7 U	6.6 U	6 U	5.9 U	6.5 U
1,2,3,6,7,8-HXCDF	PG/G	6.018	0.1	7 U	5.8 U	6.1 U	**0.17 Q J**	7.4 U	5.8 U	5.7 U	6.6 U	6 U	5.9 U	6.5 U
2,3,4,6,7,8-HXCDF	PG/G	6.018	0.1	7 U	5.8 U	6.1 U	5.9 U	7.4 U	5.8 U	5.7 U	6.6 U	6 U	5.9 U	6.5 U
1,2,3,7,8,9-HXCDF	PG/G	6.018	0.1	7 U	5.8 U	6.1 U	5.9 U	7.4 U	5.8 U	5.7 U	6.6 U	6 U	5.9 U	6.5 U
1,2,3,4,6,7,8-HPCDF	PG/G	6.018	0.01	7 U	**0.2 B J**	6.1 U	**0.12 Q B J**	7.4 U	**0.65 B J**	5.7 U	6.6 U	6 U	**0.44 Q B J**	**0.19 Q B J**
1,2,3,4,7,8,9-HPCDF	PG/G	6.018	0.01	7 U	5.8 U	6.1 U	5.9 U	7.4 U	5.8 U	5.7 U	6.6 U	6 U	5.9 U	6.5 U
OCDF	PG/G	12.091	0.001	14 U	**0.23 Q B J**	12 U	**0.21 B J**	15 U	**0.48 B J**	11 U	13 U	**0.5 B J**	**0.53 Q B J**	13 U
DIOXIN TEQ (ND=0)	PG/G	--	--	**1.164**	**0.1**	**0.208**	**0.128**	**0.12**	**0**	**0**	**0.17**	**0.858**	**0.21**	**0.084**
DIOXIN TEQ (ND=1/2DL)	PG/G	--	--	**5.3297**	**6.444**	**6.8771**	**6.275**	**8.97475**	**7.214**	**7.07505**	**7.71665**	**7.428**	**6.947**	**7.81965**

***Source:** USEPA 1989. *1989 Update to the Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-Dioxins and Dibenzofurans (CDDs and CDFs*

There are no TEL and PEL values for dioxin and furan congeners

NOTE: Shaded and bold values represent detected concentrations.

RL = average reporting limit

TEF = toxicity equivalency factor

TEQ = toxicity equivalency quotient

J = compound was detected, but below the reporting limit (value is estimated)

JA = the analyte was positively identified, but the quantitation is an estimate

U = compound was analyzed but not detected

Q = estimated maximum possible concentration.

TABLE A-73. BUTYLTIN CONCENTRATIONS (UG/KG) IN PROPOSED MASONVILLE BORROW MATERIAL (JANUARY 2006)

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

			Sample ID										
ANALYTE	**UNITS**	**RL***	**EB-01A-SED**	**EB-01B-SED**	**EB-01C-SED**	**EB-09A-SED**	**EB-09B-SED**	**EB-09C-SED**	**EB-10A-SED**	**EB-10B-SED**	**EB-10C-SED**	**EB-11A-SED**	**EB-11B-SED**
DIBUTYLTIN	UG/KG	1.591	1.6 U	1.6 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.6 U	1.5 U	1.6 U	1.6 U
MONOBUTYLTIN	UG/KG	2.073	2 U	2 U	2 U	1.9 U	2 U	2 U	2 U	2.1 U	2 U	2.1 U	2.2 U
TETRABUTYLTIN	UG/KG	2.073	2 U	2 U	2 U	1.9 U	2 U	2 U	2 U	2.1 U	2 U	2.1 U	2.2 U
TRIBUTYLTIN	UG/KG	1.827	1.8 U	1.8 U	1.8 U	1.7 U	1.8 U	1.7 U	1.8 U	1.8 U	1.8 U	1.8 U	1.9 U

*Average Reporting Limit for all samples. There are no TEL and PEL values for butyltins.
NOTE: Shaded and bold values represent detected concentrations.
RL = average reporting limit
U = compound was analyzed but not detected

TABLE A-73. CONTINUED

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

			Sample ID										
ANALYTE	**UNITS**	**RL***	**EB-11C-SED**	**EB-12A-SED**	**EB-12B-SED**	**EB-12C-SED**	**EB-12D-SED**	**EB-13A-SED**	**EB-13B-SED**	**EB-13C-SED**	**EB-14A-SED**	**EB-14B-SED**	**EB-14C-SED**
DIBUTYLTIN	UG/KG	1.591	1.6 U	1.8 U	1.6 U	1.7 U	1.7 U	1.5 U	1.5 U	1.6 U	1.7 U	1.6 U	1.7 U
MONOBUTYLTIN	UG/KG	2.073	2.1 U	2.3 U	2.1 U	2.2 U	2.2 U	2 U	1.9 U	2 U	2.2 U	2.1 U	2.2 U
TETRABUTYLTIN	UG/KG	2.073	2.1 U	2.3 U	2.1 U	2.2 U	2.2 U	2 U	1.9 U	2 U	2.2 U	2.1 U	2.2 U
TRIBUTYLTIN	UG/KG	1.827	1.8 U	2 U	1.8 U	1.9 U	2 U	1.8 U	1.7 U	1.8 U	2.3 P	2.1 P	1.9 U

*Average Reporting Limit for all samples. There are no TEL and PEL values for butyltins.
NOTE: Shaded and bold values represent detected concentrations.
RL = average reporting limit
U = compound was analyzed but not detected
P = greater than 25% difference for detected concentrations between two GC columns. Lower of two values is reported.

TABLE A-74. VOLATILE ORGANIC COMPOUND (VOC) CONCENTRATIONS (UG/KG) IN PROPOSED MASONVILLE BORROW MATERIAL (JANUARY 2006)

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

			Sample ID										
ANALYTE	**UNITS**	**MDL**	**EB-01A-SED**	**EB-01B-SED**	**EB-01C-SED**	**EB-09A-SED**	**EB-09B-SED**	**EB-09C-SED**	**EB-10A-SED**	**EB-10B-SED**	**EB-10C-SED**	**EB-11A-SED**	**EB-11B-SED**
1,1,1-TRICHLOROETHANE	UG/KG	0.327	0.31 U	0.31 U	0.31 U	0.3 U	0.29 U	0.31 U	0.35 U	0.3 U	0.3 U	0.34 U	0.35 U
1,1,2,2-TETRACHLOROETHANE	UG/KG	0.542	0.51 U	0.51 U	0.51 U	0.5 U	0.48 U	0.52 U	0.57 U	0.5 U	0.5 U	0.57 U	0.58 U
1,1,2-TRICHLOROETHANE	UG/KG	0.816	0.77 U	0.76 U	0.76 U	0.75 U	0.72 U	0.79 U	0.86 U	0.75 U	0.75 U	0.86 U	0.87 U
1,1-DICHLOROETHANE	UG/KG	0.347	0.33 U	0.32 U	0.32 U	0.32 U	0.31 U	0.33 U	0.37 U	0.32 U	0.32 U	0.36 U	0.37 U
1,1-DICHLOROETHENE	UG/KG	0.709	0.67 U	0.66 U	0.66 U	0.65 U	0.63 U	0.68 U	0.75 U	0.65 U	0.66 U	0.75 U	0.75 U
1,2-DICHLOROBENZENE	UG/KG	1.118	1.1 U	1 U	1 U	1 U	0.99 U	1.1 U	1.2 U	1 U	1 U	1.2 U	1.2 U
1,2-DICHLOROETHANE	UG/KG	0.364	0.34 U	0.34 U	0.34 U	0.33 U	0.32 U	0.35 U	0.38 U	0.33 U	0.34 U	0.38 U	0.39 U
1,2-DICHLOROPROPANE	UG/KG	0.755	0.71 U	0.71 U	0.71 U	0.69 U	0.67 U	0.73 U	0.8 U	0.69 U	0.7 U	0.79 U	0.8 U
1,3-DICHLOROBENZENE	UG/KG	1.108	1 U	1 U	1 U	1 U	0.97 U	1.1 U	1.2 U	1 U	1 U	1.2 U	1.2 U
1,4-DICHLOROBENZENE	UG/KG	0.821	0.78 U	0.77 U	0.77 U	0.76 U	0.73 U	0.79 U	0.87 U	0.75 U	0.76 U	0.86 U	0.87 U
2-BUTANONE (MEK)	UG/KG	1.682	1.6 U	1.6 U	1.6 U	1.5 U	1.5 U	1.6 U	1.8 U	1.5 U	1.6 U	1.8 U	1.8 U
2-CHLOROETHYL VINYL ETHER	UG/KG	11.082	10 U	10 U	10 U	10 U	9.8 U	11 U	12 U	10 U	10 U	12 U	12 U
ACROLEIN	UG/KG	113.182	110 U	110 U	110 U	100 U	100 U	110 U	120 U	100 U	110 U	120 U	120 U
ACRYLONITRILE	UG/KG	31.955	30 U	30 U	30 U	29 U	28 U	31 U	34 U	29 U	30 U	34 U	34 U
BENZENE	UG/KG	0.657	0.62 U	0.62 U	0.62 U	0.6 U	0.58 U	0.63 U	0.7 U	0.6 U	0.61 U	0.69 U	0.7 U
BROMODICHLOROMETHANE	UG/KG	0.301	0.28 U	0.28 U	0.28 U	0.28 U	0.27 U	0.29 U	0.32 U	0.28 U	0.28 U	0.32 U	0.32 U
BROMOFORM	UG/KG	0.736	0.69 U	0.69 U	0.69 U	0.68 U	0.65 U	0.71 U	0.78 U	0.67 U	0.68 U	0.77 U	0.78 U
BROMOMETHANE	UG/KG	1.123	1.1 U	1.1 U	1 U	1 U	1 U	1.1 U	1.2 U	1 U	1 U	1.2 U	1.2 U
CARBON TETRACHLORIDE	UG/KG	0.301	0.28 U	0.28 U	0.28 U	0.28 U	0.27 U	0.29 U	0.32 U	0.28 U	0.28 U	0.32 U	0.32 U
CHLOROETHANE	UG/KG	1.127	1.1 U	1.1 U	1.1 U	1 U	1 U	1.1 U	1.2 U	1 U	1 U	1.2 U	1.2 U
CHLOROFORM	UG/KG	0.301	0.28 U	0.28 U	0.28 U	0.28 U	0.27 U	0.29 U	0.32 U	0.28 U	0.28 U	0.32 U	0.32 U
CHLOROMETHANE	UG/KG	0.346	0.33 U	0.32 U	0.32 U	0.32 U	0.31 U	0.33 U	0.36 U	0.32 U	0.32 U	0.36 U	0.37 U
CIS-1,3-DICHLOROPROPENE	UG/KG	0.347	0.33 U	0.32 U	0.32 U	0.32 U	0.31 U	0.33 U	0.37 U	0.32 U	0.32 U	0.36 U	0.37 U
DIBROMOCHLOROMETHANE	UG/KG	0.314	0.3 U	0.29 U	0.29 U	0.29 U	0.28 U	0.3 U	0.33 U	0.29 U	0.29 U	0.33 U	0.33 U
DICHLORODIFLUOROMETHANE	UG/KG	0.609	0.57 U	0.57 U	0.57 U	0.56 U	0.54 U	0.59 U	0.64 U	0.56 U	0.56 U	0.64 U	0.65 U
ETHYLBENZENE	UG/KG	1.118	1.1 U	1 U	1 U	1 U	0.99 U	1.1 U	1.2 U	1 U	1 U	1.2 U	1.2 U
METHYLENE CHLORIDE	UG/KG	1.595	**29**	**27**	**27**	**26**	**25**	**10**	**11**	**9.9**	**9.6**	1.7 U	**3.5 J B**
TETRACHLOROETHENE	UG/KG	0.922	0.87 U	0.86 U	0.86 U	0.85 U	0.82 U	0.89 U	0.98 U	0.84 U	0.85 U	0.97 U	0.98 U
TOLUENE	UG/KG	0.712	0.67 U	0.67 U	0.66 U	0.65 U	0.63 U	0.69 U	0.75 U	0.65 U	0.66 U	0.75 U	0.76 U
TRANS-1,2-DICHLOROETHENE	UG/KG	0.786	0.74 U	0.74 U	0.73 U	0.72 U	0.7 U	0.76 U	0.83 U	0.72 U	0.73 U	0.83 U	0.83 U
TRANS-1,3-DICHLOROPROPENE	UG/KG	0.330	0.31 U	0.31 U	0.31 U	0.3 U	0.29 U	0.32 U	0.35 U	0.3 U	0.31 U	0.35 U	0.35 U
TRICHLOROETHENE	UG/KG	1.031	0.98 U	0.97 U	0.97 U	0.95 U	0.92 U	1 U	1.1 U	0.95 U	0.96 U	1.1 U	1.1 U
TRICHLOROFLUOROMETHANE	UG/KG	1.455	1.4 U	1.4 U	1.4 U	1.3 U	1.3 U	1.4 U	1.5 U	1.3 U	1.3 U	1.5 U	1.5 U
VINYL CHLORIDE	UG/KG	0.792	0.75 U	0.74 U	0.74 U	0.73 U	0.7 U	0.76 U	0.84 U	0.72 U	0.73 U	0.83 U	0.84 U

There are no TEL and PEL values for volatiles

NOTE: Shaded and bold values represent detected concentrations.

MDL = average method detection limit

B = compound was detected in method blank

J = compound was detected, but below the reporting limit (value is estimated)

U = compound was analyzed but not detected

TABLE B-74. CONTINUED

MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

			Sample ID										
ANALYTE	**UNITS**	**MDL**	**EB-11C-SED**	**EB-12A-SED**	**EB-12B-SED**	**EB-12C-SED**	**EB-12D-SED**	**EB-13A-SED**	**EB-13B-SED**	**EB-13C-SED**	**EB-14A-SED**	**EB-14B-SED**	**EB-14C-SED**
1,1,1-TRICHLOROETHANE	UG/KG	0.327	0.38 U	0.32 U	0.33 U	0.32 U	0.4 U	0.31 U	0.31 U	0.36 U	0.33 U	0.32 U	0.35 U
1,1,2,2-TETRACHLOROETHANE	UG/KG	0.542	0.63 U	0.52 U	0.55 U	0.53 U	0.67 U	0.52 U	0.51 U	0.59 U	0.54 U	0.53 U	0.59 U
1,1,2-TRICHLOROETHANE	UG/KG	0.816	0.95 U	0.79 U	0.82 U	0.8 U	1 U	0.78 U	0.77 U	0.9 U	0.82 U	0.8 U	0.89 U
1,1-DICHLOROETHANE	UG/KG	0.347	0.4 U	0.34 U	0.35 U	0.34 U	0.43 U	0.33 U	0.33 U	0.38 U	0.35 U	0.34 U	0.38 U
1,1-DICHLOROETHENE	UG/KG	0.709	0.82 U	0.69 U	0.72 U	0.69 U	0.87 U	0.68 U	0.67 U	0.78 U	0.71 U	0.69 U	0.77 U
1,2-DICHLOROBENZENE	UG/KG	1.118	1.3 U	1.1 U	1.1 U	1.1 U	1.4 U	1.1 U	1.1 U	1.2 U	1.1 U	1.1 U	1.2 U
1,2-DICHLOROETHANE	UG/KG	0.364	0.42 U	0.35 U	0.37 U	0.36 U	0.45 U	0.35 U	0.34 U	0.4 U	0.37 U	0.36 U	0.4 U
1,2-DICHLOROPROPANE	UG/KG	0.755	0.88 U	0.73 U	0.76 U	0.74 U	0.93 U	0.72 U	0.71 U	0.83 U	0.76 U	0.74 U	0.82 U
1,3-DICHLOROBENZENE	UG/KG	1.108	1.3 U	1.1 U	1.1 U	1.1 U	1.4 U	1.1 U	1 U	1.2 U	1.1 U	1.1 U	1.2 U
1,4-DICHLOROBENZENE	UG/KG	0.821	0.95 U	0.8 U	0.83 U	0.8 U	1 U	0.79 U	0.77 U	0.9 U	0.83 U	0.8 U	0.89 U
2-BUTANONE (MEK)	UG/KG	1.682	2 U	1.6 U	1.7 U	1.6 U	2.1 U	1.6 U	1.6 U	1.8 U	1.7 U	1.6 U	1.8 U
2-CHLOROETHYL VINYL ETHER	UG/KG	11.082	13 U	11 U	11 U	11 U	14 U	11 U	10 U	12 U	11 U	11 U	12 U
ACROLEIN	UG/KG	113.182	130 U	110 U	110 U	110 U	140 U	110 U	110 U	120 U	110 U	110 U	120 U
ACRYLONITRILE	UG/KG	31.955	37 U	31 U	32 U	31 U	39 U	31 U	30 U	35 U	32 U	31 U	35 U
BENZENE	UG/KG	0.657	0.76 U	0.64 U	0.66 U	0.64 U	0.81 U	0.63 U	0.62 U	0.72 U	0.66 U	0.64 U	0.71 U
BROMODICHLOROMETHANE	UG/KG	0.301	0.35 U	0.29 U	0.3 U	0.29 U	0.37 U	0.29 U	0.28 U	0.33 U	0.3 U	0.29 U	0.33 U
BROMOFORM	UG/KG	0.736	0.85 U	0.71 U	0.74 U	0.72 U	0.91 U	0.71 U	0.69 U	0.81 U	0.74 U	0.72 U	0.8 U
BROMOMETHANE	UG/KG	1.123	1.3 U	1.1 U	1.1 U	1.1 U	1.4 U	1.1 U	1.1 U	1.2 U	1.1 U	1.1 U	1.2 U
CARBON TETRACHLORIDE	UG/KG	0.301	0.35 U	0.29 U	0.3 U	0.29 U	0.37 U	0.29 U	0.28 U	0.33 U	0.3 U	0.29 U	0.33 U
CHLOROETHANE	UG/KG	1.127	1.3 U	1.1 U	1.1 U	1.1 U	1.4 U	1.1 U	1.1 U	1.2 U	1.1 U	1.1 U	1.2 U
CHLOROFORM	UG/KG	0.301	0.35 U	0.29 U	0.3 U	0.29 U	0.37 U	0.29 U	0.28 U	0.33 U	0.3 U	0.29 U	0.33 U
CHLOROMETHANE	UG/KG	0.346	0.4 U	0.33 U	0.35 U	0.34 U	0.43 U	0.33 U	0.33 U	0.38 U	0.35 U	0.34 U	0.37 U
CIS-1,3-DICHLOROPROPENE	UG/KG	0.347	0.4 U	0.33 U	0.35 U	0.34 U	0.43 U	0.33 U	0.33 U	0.38 U	0.35 U	0.34 U	0.38 U
DIBROMOCHLOROMETHANE	UG/KG	0.314	0.36 U	0.3 U	0.32 U	0.31 U	0.39 U	0.3 U	0.3 U	0.34 U	0.32 U	0.31 U	0.34 U
DICHLORODIFLUOROMETHANE	UG/KG	0.609	0.71 U	0.59 U	0.61 U	0.6 U	0.75 U	0.58 U	0.57 U	0.67 U	0.61 U	0.59 U	0.66 U
ETHYLBENZENE	UG/KG	1.118	1.3 U	1.1 U	1.1 U	1.1 U	1.4 U	1.1 U	1.1 U	1.2 U	1.1 U	1.1 U	1.2 U
METHYLENE CHLORIDE	UG/KG	1.595	**7.7**	**9.6**	**10**	**5.7 J**	**7.9**	**6.2**	**5.9**	**4.5 J B**	**3.8 J B**	**1.7 J**	**2.5 J**
TETRACHLOROETHENE	UG/KG	0.922	1.1 U	0.89 U	0.93 U	0.9 U	1.1 U	0.89 U	0.87 U	1 U	0.93 U	0.9 U	1 U
TOLUENE	UG/KG	0.712	0.83 U	0.69 U	0.72 U	0.7 U	0.88 U	0.68 U	0.67 U	0.78 U	0.71 U	0.69 U	0.77 U
TRANS-1,2-DICHLOROETHENE	UG/KG	0.786	0.91 U	0.76 U	0.79 U	0.77 U	0.97 U	0.75 U	0.74 U	0.86 U	0.79 U	0.77 U	0.85 U
TRANS-1,3-DICHLOROPROPENE	UG/KG	0.330	0.39 U	0.32 U	0.33 U	0.32 U	0.41 U	0.32 U	0.31 U	0.36 U	0.33 U	0.32 U	0.36 U
TRICHLOROETHENE	UG/KG	1.031	1.2 U	1 U	1 U	1 U	1.3 U	1 U	0.98 U	1.1 U	1 U	1 U	1.1 U
TRICHLOROFLUOROMETHANE	UG/KG	1.455	1.7 U	1.4 U	1.5 U	1.4 U	1.8 U	1.4 U	1.4 U	1.6 U	1.5 U	1.4 U	1.6 U
VINYL CHLORIDE	UG/KG	0.792	0.92 U	0.77 U	0.8 U	0.77 U	0.98 U	0.76 U	0.75 U	0.87 U	0.8 U	0.77 U	0.86 U

There are no TEL and PEL values for volatiles

NOTE: Shaded and bold values represent detected concentrations.

MDL = average method detection limit

B = compound was detected in method blank

J = compound was detected, but below the reporting limit (value is estimated)

U = compound was analyzed but not detected

TABLE A-75. SEMIVOLATILE ORGANIC COMPOUND (SVOC) CONCENTRATIONS (UG/KG) IN PROPOSED MASONVILLE BORROW MATERIAL (JANUARY 2006)
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLANI

					Sample ID											
ANALYTE	**UNITS**	**MDL**	**TEL***	**PEL***	**EB-01A-SED**	**EB-01B-SED**	**EB-01C-SED**	**EB-09A-SED**	**EB-09B-SED**	**EB-09C-SED**	**EB-10A-SED**	**EB-10B-SED**	**EB-10C-SED**	**EB-11A-SED**	**EB-11B-SED**
1,2,4-TRICHLOROBENZENE	UG/KG	6.5818182	--	--	6.5 U	6.5 U	6.5 U	6.7 U	6.5 U	6.7 U	6.4 U	6.7 U	6.7 U	6.4 U	6.5 U
1,2-DICHLOROBENZENE	UG/KG	1.1177273	--	--	1.1 U	1 U	1 U	1 U	0.99 U	1.1 U	1.2 U	1 U	1 U	1.2 U	1.2 U
1,2-DIPHENYLHYDRAZINE	UG/KG	7.5045455	--	--	7.4 U	7.4 U	7.4 U	7.7 U	7.4 U	7.6 U	7.3 U	7.6 U	7.7 U	7.3 U	7.4 U
1,3-DICHLOROBENZENE	UG/KG	1.1077273	--	--	1 U	1 U	1 U	1 U	0.97 U	1.1 U	1.2 U	1 U	1 U	1.2 U	1.2 U
1,4-DICHLOROBENZENE	UG/KG	0.8213636	--	--	0.78 U	0.77 U	0.77 U	0.76 U	0.73 U	0.79 U	0.87 U	0.75 U	0.76 U	0.86 U	0.87 U
2,4,6-TRICHLOROPHENOL	UG/KG	5.5772727	--	--	5.5 U	5.5 U	5.5 U	5.7 U	5.5 U	5.6 U	5.5 U	5.7 U	5.7 U	5.4 U	5.5 U
2,4-DICHLOROPHENOL	UG/KG	6.1272727	--	--	6.1 U	6 U	6 U	6.2 U	6 U	6.2 U	6 U	6.2 U	6.3 U	6 U	6 U
2,4-DIMETHYLPHENOL	UG/KG	5.2363636	--	--	5.2 U	5.1 U	5.1 U	5.3 U	5.2 U	5.3 U	5.1 U	5.3 U	5.4 U	5.1 U	5.1 U
2,4-DINITROPHENOL	UG/KG	812.72727	--	--	800 U	800 U	800 U	830 U	800 U	820 U	800 U	830 U	830 U	790 U	800 U
2,4-DINITROTOLUENE	UG/KG	3.4090909	--	--	3.4 U	3.3 U	3.3 U	3.5 U	3.4 U	3.4 U	3.3 U	3.5 U	3.5 U	3.3 U	3.3 U
2,6-DINITROTOLUENE	UG/KG	4.6272727	--	--	4.6 U	4.5 U	4.5 U	4.7 U	4.6 U	4.7 U	4.5 U	4.7 U	4.7 U	4.5 U	4.6 U
2-CHLORONAPHTHALENE	UG/KG	6.8954545	--	--	6.8 U	6.8 U	6.8 U	7 U	6.8 U	7 U	6.7 U	7 U	7.1 U	6.7 U	6.8 U
2-CHLOROPHENOL	UG/KG	5.1363636	--	--	5.1 U	5 U	5 U	5.2 U	5.1 U	5.2 U	5 U	5.2 U	5.3 U	5 U	5 U
2-METHYLPHENOL	UG/KG	7.2545455	--	--	7.2 U	7.1 U	7.1 U	7.4 U	7.1 U	7.3 U	7.1 U	7.4 U	7.4 U	7.1 U	7.1 U
2-NITROPHENOL	UG/KG	5.85	--	--	5.8 U	5.7 U	5.7 U	6 U	5.8 U	5.9 U	5.7 U	5.9 U	6 U	5.7 U	5.8 U
3,3'-DICHLOROBENZIDINE	UG/KG	8.0181818	--	--	7.9 U	7.9 U	7.9 U	8.2 U	7.9 U	8.1 U	7.9 U	8.1 U	8.2 U	7.8 U	7.9 U
4,6-DINITRO-2-METHYLPHENOL	UG/KG	812.72727	--	--	800 U	800 U	800 U	830 U	800 U	820 U	800 U	830 U	830 U	790 U	800 U
4-BROMOPHENYL PHENYL ETHER	UG/KG	16.272727	--	--	16 U	16 U	16 U	17 U	16 U	16 U	16 U	17 U	17 U	16 U	16 U
4-CHLORO-3-METHYLPHENOL	UG/KG	7.0727273	--	--	7 U	6.9 U	6.9 U	7.2 U	7 U	7.2 U	6.9 U	7.2 U	7.2 U	6.9 U	7 U
4-CHLOROPHENYL PHENYL ETHER	UG/KG	6.6409091	--	--	6.6 U	6.5 U	6.5 U	6.8 U	6.5 U	6.7 U	6.5 U	6.7 U	6.8 U	6.5 U	6.5 U
4-METHYLPHENOL	UG/KG	7.2863636	--	--	7.2 U	7.2 U	7.1 U	7.4 U	7.2 U	7.4 U	7.1 U	7.4 U	7.5 U	7.1 U	7.2 U
4-NITROPHENOL	UG/KG	4.3590909	--	--	4.3 U	4.3 U	4.3 U	4.4 U	4.3 U	4.4 U	4.3 U	4.4 U	4.5 U	4.2 U	4.3 U
ACENAPHTHENE	UG/KG	2.05	6.71	88.9	**2.1 J**	**7.1 a**	2 U	**2.9 J**	2 U	2.1 U	**12a**	2.1 U	2.1 U	**2.2 J**	2 U
BENZOIC ACID	UG/KG	270.45455	--	--	270 U	270 U	260 U	280 U	270 U	270 U	260 U	270 U	280 U	260 U	270 U
BENZYL ALCOHOL	UG/KG	36.681818	--	--	36 U	36 U	36 U	37 U	36 U	37 U	36 U	37 U	38 U	36 U	36 U
BIS(2-CHLOROETHOXY)METHANE	UG/KG	7.2909091	--	--	7.2 U	7.2 U	7.1 U	7.4 U	7.2 U	7.4 U	7.1 U	7.4 U	7.5 U	7.1 U	7.2 U
BIS(2-CHLOROETHYL) ETHER	UG/KG	6.3136364	--	--	6.3 U	6.2 U	6.2 U	6.4 U	6.2 U	6.4 U	6.2 U	6.4 U	6.5 U	6.1 U	6.2 U
BIS(2-CHLOROISOPROPYL) ETHER	UG/KG	4.7045455	--	--	4.7 U	4.6 U	4.6 U	4.8 U	4.6 U	4.8 U	4.6 U	4.8 U	4.8 U	4.6 U	4.6 U
BIS(2-ETHYLHEXYL) PHTHALATE	UG/KG	20.181818	182.16	2646.51	**40 J**	**81 J**	**110 J**	**42 J**	**33 J**	**46 J**	**41 J**	**21 J**	**28 J**	**54 J**	**69 J**
BUTYL BENZYL PHTHALATE	UG/KG	7.2	--	--	**23 J**	**21 J**	7.1 U	**13 J**	**42 J**	**26 J**	**30 J**	**29 J**	**26 J**	**37 J**	**17 J**
DIBENZOFURAN	UG/KG	7.3181818	--	--	7.2 U	7.2 U	7.2 U	7.5 U	7.2 U	7.4 U	7.2 U	7.4 U	7.5 U	7.1 U	7.2 U
DIETHYL PHTHALATE	UG/KG	6.5636364	--	--	6.5 U	6.4 U	6.4 U	6.7 U	6.5 U	6.6 U	6.4 U	6.7 U	6.7 U	6.4 U	6.5 U
DIMETHYL PHTHALATE	UG/KG	6.8045455	--	--	6.7 U	6.7 U	6.7 U	6.9 U	6.7 U	6.9 U	6.7 U	6.9 U	7 U	6.6 U	6.7 U
DI-N-BUTYL PHTHALATE	UG/KG	39.636364	--	--	39 U	39 U	39 U	40 U	39 U	40 U	39 U	40 U	41 U	39 U	39 U
DI-N-OCTYL PHTHALATE	UG/KG	7.5	--	--	7.4 U	7.4 U	7.4 U	7.6 U	7.4 U	7.6 U	7.3 U	7.6 U	7.7 U	7.3 U	7.4 U
HEXACHLOROBENZENE	UG/KG	6.5409091	--	--	6.5 U	6.4 U	6.4 U	6.7 U	6.4 U	6.6 U	6.4 U	6.6 U	6.7 U	6.4 U	6.4 U
HEXACHLOROBUTADIENE	UG/KG	6.3636364	--	--	6.3 U	6.2 U	6.2 U	6.5 U	6.3 U	6.4 U	6.2 U	6.5 U	6.5 U	6.2 U	6.3 U
HEXACHLOROCYCLOPENTADIENE	UG/KG	26.090909	--	--	26 U	26 U	26 U	27 U	26 U	26 U	25 U	26 U	27 U	25 U	26 U
HEXACHLOROETHANE	UG/KG	6.2363636	--	--	6.2 U	6.1 U	6.1 U	6.4 U	6.1 U	6.3 U	6.1 U	6.3 U	6.4 U	6.1 U	6.1 U
ISOPHORONE	UG/KG	6.2090909	--	--	6.1 U	6.1 U	6.1 U	6.3 U	6.1 U	6.3 U	6.1 U	6.3 U	6.4 U	6 U	6.1 U
NITROBENZENE	UG/KG	10.5	--	--	10 U	10 U	10 U	11 U	10 U	11 U	10 U	11 U	11 U	10 U	10 U
N-NITROSODIMETHYLAMINE	UG/KG	81.272727	--	--	80 U	80 U	80 U	83 U	80 U	82 U	80 U	83 U	83 U	79 U	80 U
N-NITROSODI-N-PROPYLAMINE	UG/KG	6.6	--	--	6.5 U	6.5 U	6.5 U	6.7 U	6.5 U	6.7 U	6.5 U	6.7 U	6.8 U	6.4 U	6.5 U
N-NITROSODIPHENYLAMINE	UG/KG	67.409091	--	--	67 U	66 U	66 U	69 U	66 U	68 U	66 U	68 U	69 U	66 U	66 U
PENTACHLOROPHENOL		445.90909	--	--	440 U	440 U	440 U	450 U	440 U	450 U	440 U	450 U	460 U	430 U	440 U
PHENOL	UG/KG	6.6909091	--	--	6.6 U	6.6 U	6.6 U	6.8 U	6.6 U	6.8 U	6.5 U	6.8 U	6.9 U	6.5 U	6.6 U
PYRENE	UG/KG	1.25	152.66	1397.6	**7.7**	**110**	**5.5 J**	**25**	**18**	**2.2 J**	**77**	**4.9 J**	**2.5 J**	**11**	**6 J**

**Source* : MacDonald et al. 1996. Ecotoxicology 5: 253-278
NOTE: Shaded and bold values represent detected concentrations
MDL = average method detection limi
PEL = probable effects level
J = compound was detected, but below the reporting limit (value is estimatec
TEL = threshold effects level
U = compound was analyzed but not detectec

TABLE B-75. CONTINUED
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLANI

					Sample ID										
ANALYTE	**UNITS**	**MDL**	**TEL***	**PEL***	**EB-11C-SED**	**EB-12A-SED**	**EB-12B-SED**	**EB-12C-SED**	**EB-12D-SED**	**EB-13A-SED**	**EB-13B-SED**	**EB-13C-SED**	**EB-14A-SED**	**EB-14B-SED**	**EB-14C-SED**
1,2,4-TRICHLOROBENZENE	UG/KG	6.5818182	--	--	6.6 U	6.7 U	6.6 U	6.7 U	6.5 U	6.6 U	6.5 U	6.7 U	6.5 U	6.7 U	6.6 U
1,2-DICHLOROBENZENE	UG/KG	1.1177273	--	--	1.3 U	1.1 U	1.1 U	1.1 U	1.4 U	1.1 U	1.1 U	1.2 U	1.1 U	1.1 U	1.2 U
1,2-DIPHENYLHYDRAZINE	UG/KG	7.5045455	--	--	7.5 U	7.6 U	7.5 U	7.7 U	7.4 U	7.6 U	7.4 U	7.6 U	7.4 U	7.7 U	7.5 U
1,3-DICHLOROBENZENE	UG/KG	1.1077273	--	--	1.3 U	1.1 U	1.1 U	1.1 U	1.4 U	1.1 U	1 U	1.2 U	1.1 U	1.1 U	1.2 U
1,4-DICHLOROBENZENE	UG/KG	0.8213636	--	--	0.95 U	0.8 U	0.83 U	0.8 U	1 U	0.79 U	0.77 U	0.9 U	0.83 U	0.8 U	0.89 U
2,4,6-TRICHLOROPHENOL	UG/KG	5.5772727	--	--	5.6 U	5.7 U	5.5 U	5.7 U	5.5 U	5.6 U	5.5 U	5.7 U	5.5 U	5.7 U	5.6 U
2,4-DICHLOROPHENOL	UG/KG	6.1272727	--	--	6.1 U	6.2 U	6.1 U	6.3 U	6.1 U	6.2 U	6 U	6.2 U	6.1 U	6.3 U	6.2 U
2,4-DIMETHYLPHENOL	UG/KG	5.2363636	--	--	5.2 U	5.3 U	5.2 U	5.4 U	5.2 U	5.3 U	5.2 U	5.3 U	5.2 U	5.4 U	5.3 U
2,4-DINITROPHENOL	UG/KG	812.72727	--	--	810 U	830 U	810 U	830 U	800 U	820 U	800 U	820 U	810 U	830 U	820 U
2,4-DINITROTOLUENE	UG/KG	3.4090909	--	--	3.4 U	3.5 U	3.4 U	3.5 U	3.4 U	3.4 U	3.4 U	3.5 U	3.4 U	3.5 U	3.4 U
2,6-DINITROTOLUENE	UG/KG	4.6272727	--	--	4.6 U	4.7 U	4.6 U	4.7 U	4.6 U	4.7 U	4.6 U	4.7 U	4.6 U	4.7 U	4.7 U
2-CHLORONAPHTHALENE	UG/KG	6.8954545	--	--	6.9 U	7 U	6.9 U	7.1 U	6.8 U	6.9 U	6.8 U	7 U	6.8 U	7.1 U	6.9 U
2-CHLOROPHENOL	UG/KG	5.1363636	--	--	5.1 U	5.2 U	5.1 U	5.3 U	5.1 U	5.2 U	5.1 U	5.2 U	5.1 U	5.3 U	5.2 U
2-METHYLPHENOL	UG/KG	7.2545455	--	--	7.3 U	7.4 U	7.2 U	7.4 U	7.2 U	7.3 U	7.2 U	7.4 U	7.2 U	7.4 U	7.3 U
2-NITROPHENOL	UG/KG	5.85	--	--	5.9 U	5.9 U	5.8 U	6 U	5.8 U	5.9 U	5.8 U	5.9 U	5.8 U	6 U	5.9 U
3,3'-DICHLOROBENZIDINE	UG/KG	8.0181818	--	--	8 U	8.1 U	8 U	8.2 U	7.9 U	8.1 U	7.9 U	8.1 U	8 U	8.2 U	8.1 U
4,6-DINITRO-2-METHYLPHENOL	UG/KG	812.72727	--	--	810 U	830 U	810 U	830 U	800 U	820 U	800 U	820 U	810 U	830 U	820 U
4-BROMOPHENYL PHENYL ETHER	UG/KG	16.272727	--	--	16 U	17 U	16 U	17 U	16 U	16 U	16 U	16 U	16 U	17 U	16 U
4-CHLORO-3-METHYLPHENOL	UG/KG	7.0727273	--	--	7.1 U	7.2 U	7 U	7.3 U	7 U	7.1 U	7 U	7.2 U	7 U	7.2 U	7.1 U
4-CHLOROPHENYL PHENYL ETHER	UG/KG	6.6409091	--	--	6.7 U	6.7 U	6.6 U	6.8 U	6.6 U	6.7 U	6.6 U	6.7 U	6.6 U	6.8 U	6.7 U
4-METHYLPHENOL	UG/KG	7.2863636	--	--	7.3 U	7.4 U	7.2 U	7.5 U	7.2 U	7.3 U	7.2 U	7.4 U	7.2 U	7.5 U	7.3 U
4-NITROPHENOL	UG/KG	4.3590909	--	--	4.4 U	4.4 U	4.3 U	4.5 U	4.3 U	4.4 U	4.3 U	4.4 U	4.3 U	4.5 U	4.4 U
ACENAPHTHENE	UG/KG	2.05	6.71	88.9	2.1 U	2.1 U	2 U	2.1 U	2 U	2.1 U	2 U	2.1 U	**5.4 J**	2.1 U	2.1 U
BENZOIC ACID	UG/KG	270.45455	--	--	270 U	270 U	270 U	280 U	270 U	270 U	270 U	270 U	270 U	280 U	270 U
BENZYL ALCOHOL	UG/KG	36.681818	--	--	37 U	37 U	37 U	38 U	36 U	37 U	36 U	37 U	36 U	38 U	37 U
BIS(2-CHLOROETHOXY)METHANE	UG/KG	7.2909091	--	--	7.3 U	7.4 U	7.3 U	7.5 U	7.2 U	7.3 U	7.2 U	7.4 U	7.2 U	7.5 U	7.3 U
BIS(2-CHLOROETHYL) ETHER	UG/KG	6.3136364	--	--	6.3 U	6.4 U	6.3 U	6.5 U	6.2 U	6.4 U	6.2 U	6.4 U	6.3 U	6.5 U	6.3 U
BIS(2-CHLOROISOPROPYL) ETHER	UG/KG	4.7045455	--	--	4.7 U	4.8 U	4.7 U	4.8 U	4.7 U	4.7 U	4.6 U	4.8 U	4.7 U	4.8 U	4.7 U
BIS(2-ETHYLHEXYL) PHTHALATE	UG/KG	20.181818	182.16	2646.51	20 U	20 U	**21 J**	**43 J**	**20 J**	**23 J**	20 U	20 U	**62 J**	**39 J**	**47 J**
BUTYL BENZYL PHTHALATE	UG/KG	7.2	--	--	**15 J**	7.3 U	7.2 U	7.4 U	7.1 U	7.3 U	**38 J**	**22 J**	7.1 U	7.4 U	**20 J**
DIBENZOFURAN	UG/KG	7.3181818	--	--	7.3 U	7.4 U	7.3 U	7.5 U	7.2 U	7.4 U	7.2 U	7.4 U	7.3 U	7.5 U	7.4 U
DIETHYL PHTHALATE	UG/KG	6.5636364	--	--	6.6 U	6.7 U	6.5 U	6.7 U	6.5 U	6.6 U	6.5 U	6.7 U	6.5 U	6.7 U	6.6 U
DIMETHYL PHTHALATE	UG/KG	6.8045455	--	--	6.8 U	6.9 U	6.8 U	7 U	6.7 U	6.9 U	6.7 U	6.9 U	6.7 U	7 U	6.8 U
DI-N-BUTYL PHTHALATE	UG/KG	39.636364	--	--	40 U	40 U	39 U	41 U	39 U	40 U	39 U	40 U	39 U	41 U	40 U
DI-N-OCTYL PHTHALATE	UG/KG	7.5	--	--	7.5 U	7.6 U	7.5 U	7.7 U	7.4 U	7.6 U	7.4 U	7.6 U	7.4 U	7.7 U	7.5 U
HEXACHLOROBENZENE	UG/KG	6.5409091	--	--	6.6 U	6.6 U	6.5 U	6.7 U	6.5 U	6.6 U	6.5 U	6.6 U	6.5 U	6.7 U	6.6 U
HEXACHLOROBUTADIENE	UG/KG	6.3636364	--	--	6.4 U	6.5 U	6.3 U	6.5 U	6.3 U	6.4 U	6.3 U	6.5 U	6.3 U	6.5 U	6.4 U
HEXACHLOROCYCLOPENTADIENE	UG/KG	26.090909	--	--	26 U	26 U	26 U	27 U	26 U	26 U	26 U	26 U	26 U	27 U	26 U
HEXACHLOROETHANE	UG/KG	6.2363636	--	--	6.2 U	6.3 U	6.2 U	6.4 U	6.2 U	6.3 U	6.2 U	6.3 U	6.2 U	6.4 U	6.3 U
ISOPHORONE	UG/KG	6.2090909	--	--	6.2 U	6.3 U	6.2 U	6.4 U	6.1 U	6.3 U	6.1 U	6.3 U	6.2 U	6.4 U	6.2 U
NITROBENZENE	UG/KG	10.5	--	--	11 U	11 U	10 U	11 U	10 U	11 U	10 U	11 U	10 U	11 U	11 U
N-NITROSODIMETHYLAMINE	UG/KG	81.272727	--	--	81 U	83 U	81 U	83 U	80 U	82 U	80 U	82 U	81 U	83 U	82 U
N-NITROSODI-N-PROPYLAMINE	UG/KG	6.6	--	--	6.6 U	6.7 U	6.6 U	6.8 U	6.5 U	6.6 U	6.5 U	6.7 U	6.5 U	6.8 U	6.6 U
N-NITROSODIPHENYLAMINE	UG/KG	67.409091	--	--	68 U	68 U	67 U	69 U	67 U	68 U	67 U	68 U	67 U	69 U	68 U
PENTACHLOROPHENOL	UG/KG	445.90909	--	--	450 U	450 U	440 U	460 U	440 U	450 U	440 U	450 U	440 U	460 U	450 U
PHENOL	UG/KG	6.6909091	--	--	6.7 U	6.8 U	6.7 U	**96 J**	6.6 U	6.7 U	6.6 U	6.8 U	6.6 U	6.8 U	6.7 U
PYRENE	UG/KG	1.25	152.66	1397.6	1.3 U	**3.5 J**	1.2 U	**14**	1.2 U	**11**	1.2 U	**2.3 J**	**11**	**17**	**2.7 J**

**Source* : MacDonald et al. 1996. Ecotoxicology 5: 253-278
MDL = average method detection limi
J = compound was detected, but below the reporting limit (value is estimatec
U = compound was analyzed but not detectec
NOTE: Shaded and bold values represent detected concentrations
PEL = probable effects level
TEL = threshold effects level

Table A-76. Mean Concentrations in Surface Sediments from the Upper Chesapeake Bay Approach Channels to the Port of Baltimore*

		UPPER CHESAPEAKE BAY APPROACH CHANNELS*				
ANALYTE	**UNITS**	Number of Samples (n)	Number of detects	min	max	mean
METALS						
ARSENIC	MG/KG	111	111	1.10	20.9	12.8
CADMIUM	MG/KG	111	111	0.01	0.920	0.287
CHROMIUM	MG/KG	111	111	3.90	70.7	37.5
COPPER	MG/KG	111	111	1.60	59.3	37.2
LEAD	MG/KG	111	111	1.50	80.1	44.3
MERCURY	MG/KG	111	111	0.008	0.650	0.189
NICKEL	MG/KG	111	111	1.00	63.1	41.4
SILVER	MG/KG	111	111	0.032	1.30	0.460
ZINC	MG/KG	111	111	10.1	349	218
PAHs						
1-METHYLNAPHTHALENE	UG/KG	111	111	0.750	230	18.0
2-METHYLNAPHTHALENE	UG/KG	111	111	0.400	510	40.6
ACENAPHTHENE	UG/KG	111	111	0.360	290	33.0
ACENAPHTHYLENE	UG/KG	111	111	0.365	260	17.7
ANTHRACENE	UG/KG	111	111	0.365	160	13.4
BENZO(A)ANTHRACENE	UG/KG	111	111	0.365	97.0	14.0
BENZO(A)PYRENE	UG/KG	111	111	0.365	120	19.0
BENZO(B)FLUORANTHENE	UG/KG	111	111	0.490	250	35.5
BENZO(GHI)PERYLENE	UG/KG	111	111	0.405	73.0	14.1
BENZO(K)FLUORANTHENE	UG/KG	111	111	0.410	53.0	8.97
CHRYSENE	UG/KG	111	111	0.365	80.0	13.4
DIBENZO(A,H)ANTHRACENE	UG/KG	111	111	0.325	10.0	2.14
FLUORANTHENE	UG/KG	111	111	0.365	400	45.3
FLUORENE	UG/KG	111	111	0.380	220	20.6
INDENO(1,2,3-CD)PYRENE	UG/KG	111	111	0.395	51.0	9.75
NAPHTHALENE	UG/KG	111	111	0.375	710	59.0
PHENANTHRENE	UG/KG	111	111	0.350	460	38.5
PYRENE	UG/KG	111	111	0.420	340	39.8
TOTAL PAHs	UG/KG	111	111	7.56	4,239	443
PCBs						
TOTAL PCBs	UG/KG	94	94	1.42	44.1	7.94
DIOXINs AND FURANs						
DIOXIN TEQ	NG/KG	21	21	0.464	11.5	4.25
CHLORINATED PESTICIDES						
4,4'-DDD	UG/KG	111	111	0.200	2.80	0.382
4,4'-DDE	UG/KG	111	111	0.060	2.50	0.362
4,4'-DDT	UG/KG	111	111	0.070	0.800	0.326

**Data from the Upper Chesapeake Bay approach channels from sampling conducted in 1998, 1999 and 2002 for upper Chesapeake Bay approach channels currently placed at Poplar Island (EA 2003, 2000a, 2000b).*

TABLE A-77. PHYSICAL PARAMETERS OF PROPOSED SEAGIRT BORROW MATERIAL
'ROPOSED MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, M ARYLANI
Samples Collected June 2006

ANALYTE	UNITS	AVGRL	EA-01/02-SED	EA-03/04-SED	EA-05/06-SED	EA-07/08-SED	EA-09/10-SED
CLAY	%	--	16.4	4.8	4.5	9.9	7
GRAVEL	%	--	0.3	45.5	53.6	29.4	16.4
SAND	%	--	57.2	45	38.6	49.7	70.7
SILT	%	--	26	4.7	3.2	10.9	6
SILTCLAY	%	--	42.4	9.5	7.7	20.8	13
LIQUID LIMIT	--	--	0	0	0	0	0
PERCENT SOLIDS	%	--	70	90.3	84.5	79.9	75.8
PH	NO UNITS	0.1	5.7	7.2	6.8	6.6	7.6
PLASTIC LIMIT	--	--	0	0	0	0	0
PLASTICITY INDEX	--	--	0	0	0	0	0
SPECIFIC GRAVITY	--	--	2.75	2.706	2.703	2.705	2.697

AVGRL = average reporting limit

TABLE A-78. GENERAL CHEMISTRY CONCENTRATIONS IN PROPOSED SEAGIRT BORROW MATERIAL
PROPOSED MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, M ARYLAND
Samples Collected June 2006

ANALYTE	UNITS	AVGRL	EA-01/02-SED	EA-03/04-SED	EA-05/06-SED	EA-07/08-SED	EA-09/10-SED
ACID VOLATILE SULFIDE	UMOLE/G	0.614	0.66 U	0.54 U	**0.88**	**1.5**	0.67 U
AMMONIA AS NITROGEN	MG/KG	3.06	**39.7**	**13.7**	**11.6**	**21.2**	**15**
BIOCHEMICAL OXYGEN DEMAND	MG/KG	150.8	**944**	133 U	142 U	150 U	158 U
CHEMICAL OXYGEN DEMAND	MG/KG	120.8	**2290**	**1630**	**344**	**332**	127 U
CYANIDE, TOTAL	MG/KG	0.274	0.31 U	0.24 U	0.26 U	0.27 U	0.29 U
NITRATE-NITRITE	MG/KG	0.126	0.14 U	0.11 U	0.12 U	0.13 U	0.13 U
TOTAL KJELDAHL NITROGEN	MG/KG	60.36	**732**	**434**	56.8 U	**264**	**358**
TOTAL ORGANIC CARBON	MG/KG	639.2	**16500**	**1040**	614 U	**2100**	693 U
TOTAL PHOSPHORUS	MG/KG	5.8	**127 J**	**74.5 J**	**63.2 J**	**103 J**	**80.7 J**
TOTAL SULFIDE	MG/KG	15.44	17.5 U	13.6 U	14.5 U	**20 B**	**31.7 B**

NOTE: Shaded and bold values represent detected concentrations
AVGRL = Average Reporting Limit
U = compound was analyzed but not detected
J = compound was detected, but below the reporting limit (value is estimated)
B = compound was detected in method blank

TABLE A-79. METAL CONCENTRATIONS (MG/KG) IN PROPOSED SEAGIRT BORROW MATERIAL
PROPOSED MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND
Samples Collected June 2006

ANALYTE	UNITS	TEL*	PEL*	ERLSV	ERMSV	AVGRL	EA-01/02-SED	EA-03/04-SED	EA-05/06-SED	EA-07/08-SED	EA-09/10-SED
ALUMINUM	MG/KG	--	--	--	--	0.448	**10300**	**1090**	**1210**	**2760**	**2260**
ANTIMONY	MG/KG	--	--	--	--	0.00748	**0.019 B**	**0.017 B**	**0.022 B**	**0.019 B**	**0.029 B**
ARSENIC	MG/KG	7.24	41.6	8.2	70	0.012	**1.9**	**1.1**	**0.44**	**1.7**	**1.2**
BERYLLIUM	MG/KG	--	--	--	--	0.00658	**0.33**	**0.12**	**0.055 B**	**0.25**	**0.32**
CADMIUM	MG/KG	0.676	4.21	1.2	9.6	0.00738	**0.21**	**0.02 B**	**0.018 B**	**0.067 B**	**0.046 B**
CHROMIUM	MG/KG	52.3	160.4	81	370	0.027	**55 a**	**7**	**10.7**	**13.9**	**11.8**
CHROMIUM, HEXAVALENT	MG/KG	--	--	--	--	0.0906	0.1 U	0.08 U	0.086 U	0.091 U	0.096 U
COBALT	MG/KG	--	--	--	--	0.0032	**2.9**	**2.4**	**0.97**	**3.3**	**2.1**
COPPER	MG/KG	18.7	108.2	34	270	0.00828	**37.6 E ac**	**3**	**3.6**	**7.1**	**6**
IRON	MG/KG	--	--	--	--	0.618	**12800 E**	**4240**	**3530**	**7860**	**5120**
LEAD	MG/KG	30.24	112.18	46.7	218	0.0026	**7**	**1.3**	**1.4**	**3.7**	**3.1**
MANGANESE	MG/KG	--	--	--	--	0.00838	**44.6**	**26.7**	**25.1**	**96.2**	**23.5**
MERCURY	MG/KG	0.13	0.696	0.15	0.71	0.01008	**0.018 B**	**0.01 B**	0.0095 U	**0.013 B**	0.011 U
NICKEL	MG/KG	15.9	42.8	20.9	51.6	0.02	**6.6 E**	**2.7**	**2.1**	**4.4**	**3.8**
SELENIUM	MG/KG	--	--	--	--	0.019	**0.48 B**	**0.12 B**	**0.1 B**	**0.29 B**	**0.27 B**
SILVER	MG/KG	0.73	1.77	1	3.7	0.0308	0.031 U	0.031 U	0.031 U	**0.039 B**	0.03 U
THALLIUM	MG/KG	--	--	--	--	0.00578	**0.15**	**0.027 B**	**0.02 B**	**0.055 B**	**0.045 B**
TIN	MG/KG	--	--	--	--	0.095	**6 J**	**3.3 J**	**2.7 J**	**2.7 J**	**2.5 J**
ZINC	MG/KG	124	271	150	410	0.0748	**17.9 E**	**5.8**	**4.1**	**11.9**	**10.1**

**Source:* MacDonald et al. 1996 Ecotoxicology 5: 253-278

NOTE: shaded and bold values represent detected concentrations; cells shaded green exceed the TEL; cells shaded in yellow exceed the TEL and ERL

TEL = threshold effects level

PEL = probable effects level

ERL = effects range low

ERM = effects range median

AVGRL = average reporting limit

B (inorganic) = compound was detected, but below reporting limit (value is estimated)

E = reported value is estimated because of the presence of interference

U = compound was analyzed but not detected

J (inorganic) = compound was detected in method blank

a = value greater than TEL

c = value greater than ERL

TABLE A-80. METAL SEM CONCNETRATIONS (UMOLE/G) IN PROPOSED SEAGIRT BORROW MATERIAL PROPOSED MASONVILLE DREDGED MATERIAL CONTAINMENT FACILTIY, BALTIMORE HARBOR, MARYLAND

Samples Collected June 2006

ANALYTE	UNITS	AVGRL	EA-01/02-SED	EA-03/04-SED	EA-05/06-SED	EA-07/08-SED	EA-09/10-SED
CADMIUM	UMOLE/G	0.00218	0.0024 U	0.0019 U	0.0021 U	0.0021 U	0.0024 U
COPPER	UMOLE/G	0.0128	**0.077 B**	**0.03 B**	**0.027 B**	**0.035 B**	**0.027 B**
LEAD	UMOLE/G	0.00356	**0.013 B**	**0.0068 B**	**0.0038 B**	**0.0082 B**	**0.0077 B**
NICKEL	UMOLE/G	0.0174	**0.043 B**	**0.022 B**	0.017 U	0.017 U	0.019 U
ZINC	UMOLE/G	0.00754	**0.18**	**0.11**	**0.057 B**	**0.093**	**0.11**

NOTE: shaded and bold values represent detected concentrations
AVGRL = average reporting limit
B (inorganic) **=** compound was detected, but below reporting limit (value is estimated)
U = compound was analyzed by not detected

TABLE A-81. PCB CONGENER CONCENTRATIONS (UG/KG) IN PROPOSED SEAGIRT BORROW MATERIAL
PROPOSED MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND
Samples Collected June 2006

ANALYTE	UNITS	TEL**	PEL**	ERL	ERM	AVGRL	EA-01/02-SED	EA-03/04-SED	EA-05/06-SED	EA-07/08-SED	EA-09/10-SED
PCB 8 (BZ)*	UG/KG	--	--	--	--	0.0436	**0.064 J PG**	**0.07 J PG**	**0.096 J PG**	**0.11 J PG**	**0.074 J PG**
PCB 18 (BZ)*	UG/KG	--	--	--	--	0.0288	**0.15 J**	**0.049 J PG**	**0.072 J**	**0.11 J**	0.03 U
PCB 28 (BZ)*	UG/KG	--	--	--	--	0.047	0.054 U	0.041 U	0.044 U	0.047 U	0.049 U
PCB 44 (BZ)*	UG/KG	--	--	--	--	0.0432	0.049 U	0.038 U	**0.49 PG**	0.043 U	0.045 U
PCB 49 (BZ)	UG/KG	--	--	--	--	0.0444	0.05 U	0.039 U	0.042 U	0.044 U	0.047 U
PCB 52 (BZ)*	UG/KG	--	--	--	--	0.0418	0.047 U	0.037 U	**0.39**	0.042 U	0.044 U
PCB 66 (BZ)*	UG/KG	--	--	--	--	0.0342	**0.041 J PG**	**0.074 J**	**0.13 J**	**0.051 J**	0.036 U
PCB 77 (BZ)*	UG/KG	--	--	--	--	0.0458	0.052 U	0.04 U	0.043 U	0.046 U	0.048 U
PCB 87 (BZ)	UG/KG	--	--	--	--	0.0394	0.045 U	0.035 U	0.037 U	0.039 U	0.041 U
PCB 101 (BZ)*	UG/KG	--	--	--	--	0.0422	0.048 U	0.037 U	0.04 U	0.042 U	0.044 U
PCB 105 (BZ)*	UG/KG	--	--	--	--	0.044	0.05 U	0.039 U	0.041 U	0.044 U	0.046 U
PCB 118 (BZ)*	UG/KG	--	--	--	--	0.043	**0.14 J PG**	**0.062 J**	**0.1 J**	0.043 U	0.045 U
PCB 126 (BZ)*	UG/KG	--	--	--	--	0.0554	0.063 U	0.049 U	0.052 U	0.055 U	0.058 U
PCB 128 (BZ)*	UG/KG	--	--	--	--	0.0432	0.049 U	0.038 U	0.041 U	0.043 U	0.045 U
PCB 138 (BZ)*	UG/KG	--	--	--	--	0.045	0.051 U	0.04 U	0.042 U	0.045 U	0.047 U
PCB 153 (BZ)*	UG/KG	--	--	--	--	0.0438	0.05 U	0.038 U	0.041 U	0.044 U	0.046 U
PCB 156 (BZ)	UG/KG	--	--	--	--	0.0426	0.048 U	0.038 U	0.04 U	0.042 U	0.045 U
PCB 169 (BZ)*	UG/KG	--	--	--	--	0.0412	0.047 U	0.036 U	0.039 U	0.041 U	0.043 U
PCB 170 (BZ)*	UG/KG	--	--	--	--	0.0432	0.049 U	0.038 U	0.041 U	0.043 U	0.045 U
PCB 180 (BZ)*	UG/KG	--	--	--	--	0.043	0.049 U	0.038 U	0.04 U	0.043 U	0.045 U
PCB 183 (BZ)	UG/KG	--	--	--	--	0.042	0.048 U	0.037 U	0.039 U	0.042 U	0.044 U
PCB 184 (BZ)	UG/KG	--	--	--	--	0.0362	0.041 U	0.032 U	0.034 U	0.036 U	0.038 U
PCB 187 (BZ)*	UG/KG	--	--	--	--	0.0446	0.051 U	0.039 U	0.042 U	0.044 U	0.047 U
PCB 195 (BZ)	UG/KG	--	--	--	--	0.0424	0.048 U	0.037 U	0.04 U	0.042 U	0.045 U
PCB 206 (BZ)	UG/KG	--	--	--	--	0.0422	0.048 U	0.037 U	0.04 U	0.042 U	0.044 U
PCB 209 (BZ)	UG/KG	--	--	--	--	0.045	0.051 U	0.04 U	0.042 U	0.045 U	0.047 U
TOTAL PCBs (ND=0)	UG/KG	21.55	188.79	22.7	180	--	**0.79**	**0.51**	**2.556**	**0.542**	**0.148**
TOTAL PCBs (ND=1/2DL)	UG/KG	21.55	188.79	22.7	180	--	**4.15**	**3.17**	**4.956**	**3.692**	**3.888**

* PCB Congeners used for Total PCB Summation, as per Table 9-3 of the ITM (USEPA/USACE 1998)

***Source* : MacDonald et al. 1996. Ecotoxicology 5: 253-278

NOTE: shaded and bold values represent detected concentrations

AVGRL = average reporting limit

TEL = threshold effects level

PEL = probable effects level

ERL = effects range level

ERM = effects range median

J = compound was detected, but below the reporting limit (value is estimated)

PG = the percent difference between the original and confirmation analysis is greater than 40%

U = compound was analysed but not detected

TABLE A-82. PCB AROCLOR CONCENTRATIONS (UG/KG) IN PROPOSED SEAGIRT BORROW MATERIAL

PROPOSED MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND
Samples Collected June 2006

ANALYTE	UNITS	AVGRL	EA-01/02-SED	EA-03/04-SED	EA-05/06-SED	EA-07/08-SED	EA-09/10-SED
AROCLOR 1016	UG/KG	26.4	26 U	26 U	27 U	27 U	26 U
AROCLOR 1221	UG/KG	13	13 U	13 U	13 U	13 U	13 U
AROCLOR 1232	UG/KG	16	16 U	16 U	16 U	16 U	16 U
AROCLOR 1242	UG/KG	11	11 U	11 U	11 U	11 U	11 U
AROCLOR 1248	UG/KG	12	12 U	12 U	12 U	12 U	12 U
AROCLOR 1254	UG/KG	4.4	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U
AROCLOR 1260	UG/KG	3.68	3.7 U	3.7 U	3.7 U	3.7 U	3.6 U

There are no TEL and PEL valuees for PCB Aroclors

NOTE: shaded and bold values represent detected concentrations

U = compound was analyzed but not detected

TABLE A-83. PAH CONCENTRATIONS (UG/KG) IN PROPOSED SEAGIRT BORROW MATERIAL
PROPOSED MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND
Samples Collected June 2006

ANALYTE	UNITS	TEL*	PEL*	ERL	ERM	AVGRL	EA-01/02-SED	EA-03/04-SED	EA-05/06-SED	EA-07/08-SED	EA-09/10-SED
1-METHYLNAPHTHALENE	UG/KG	--	--	--	--	2.42	4.1 U	2 U	2 U	2 U	2 U
2-METHYLNAPHTHALENE	UG/KG	20.21	201.28	70	670	2.76	4.6 U	2.3 U	2.3 U	2.3 U	2.3 U
ACENAPHTHENE	UG/KG	6.71	88.9	16	500	2.52	4.2 U	2.1 U	2.1 U	2.1 U	2.1 U
ACENAPHTHYLENE	UG/KG	5.87	127.87	44	640	2.52	4.2 U	2.1 U	2.1 U	2.1 U	2.1 U
ANTHRACENE	UG/KG	46.85	245	85.3	1100	2.04	3.4 U	1.7 U	1.7 U	1.7 U	1.7 U
BENZO(A)ANTHRACENE	UG/KG	74.83	692.53	261	1600	1.9	3.1 U	1.6 U	1.6 U	1.6 U	1.6 U
BENZO(A)PYRENE	UG/KG	88.81	763.22	430	1600	2.52	4.2 U	2.1 U	2.1 U	2.1 U	2.1 U
BENZO(B)FLUORANTHENE	UG/KG	--	--	--	--	1.42	2.3 U	1.2 U	1.2 U	1.2 U	1.2 U
BENZO(GHI)PERYLENE	UG/KG	--	--	--	--	1.46	2.5 U	**2.7 J**	1.2 U	**1.3 J**	1.2 U
BENZO(K)FLUORANTHENE	UG/KG	--	--	--	--	2.84	4.7 U	2.4 U	2.4 U	2.4 U	2.3 U
CHRYSENE	UG/KG	107.77	845.98	384	2800	1.68	2.8 U	1.4 U	1.4 U	1.4 U	1.4 U
DIBENZO(A,H)ANTHRACENE	UG/KG	6.22	134.61	63.4	260	1.68	2.8 U	1.4 U	1.4 U	1.4 U	1.4 U
FLUORANTHENE	UG/KG	112.82	1493.54	600	5100	2.68	4.5 U	**2.2 J**	2.3 U	2.2 U	2.2 U
FLUORENE	UG/KG	21.17	144.35	19	540	2.68	4.5 U	2.2 U	2.3 U	2.2 U	2.2 U
INDENO(1,2,3-CD)PYRENE	UG/KG	--	--	--	--	1.62	2.7 U	**1.3 J**	1.4 U	1.4 U	1.3 U
NAPHTHALENE	UG/KG	34.57	390.64	160	2100	2.82	4.7 U	2.3 U	2.4 U	2.4 U	2.3 U
PHENANTHRENE	UG/KG	86.68	543.53	240	1500	2.16	**3.8 J**	**5 J**	**4.4 J**	**5.4 J**	**5.1 J**
PYRENE	UG/KG	152.66	1397.6	665	2600	1.56	2.6 U	**2 J**	1.3 U	**2.5 J**	1.3 U
TOTAL PAHs (ND=0)	UG/KG	1684.06	16770.4	4022	44792	--	**3.8**	**13.2**	**4.4**	**9.2**	**5.1**
TOTAL PAHs (ND=1/2DL)	UG/KG	1684.06	16770.4	4022	44792	--	**114.3**	**56.1**	**61.35**	**59.45**	**61.2**

**Source:* MacDonald et al. 1996 Ecotoxicology 5: 253-278

NOTE: shaded and bold values represent detected concentrations
AVGRL = average reporting limit
TEL = threshold effects level
PEL = probable effects level
ERL = effects range low
ERM = effects range median
U = compound was analyzed but not detected
J = compound was detected, but below the reporting limit (value is estimated)

TABLE A-84. CHLORINATED PESTICIDE CONCENTRATIONS (UG/KG) IN PROPOSED MASONVILLE BORROW MATERIAL
PROPOSED MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND
Samples Collected June 2006

ANALYTE	UNITS	TEL*	PEL*	ERL	ERM	AVGRL	EA-01/02-SED	EA-03/04-SED	EA-05/06-SED	EA-07/08-SED	EA-09/10-SED
4,4'-DDD	UG/KG	1.22	7.81	2	20	0.16	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
4,4'-DDE	UG/KG	2.07	374.17	2.2	27	0.21	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
4,4'-DDT	UG/KG	1.19	4.77	1	7	0.18	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
ALDRIN	UG/KG	--	--	--	--	0.21	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
ALPHA-BHC	UG/KG	--	--	--	--	0.14	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
BETA-BHC	UG/KG	--	--	--	--	0.22	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
CHLORDANE (TECHNICAL)	UG/KG	2.26	4.79	0.5	6	0.776	0.78 U	0.77 U	0.78 U	0.78 U	0.77 U
CHLOROBENSIDE	UG/KG	--	--	--	--	0.688	0.69 U	0.69 U	0.69 U	0.69 U	0.68 U
DCPA	UG/KG	--	--	--	--	0.45	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U
DELTA-BHC	UG/KG	--	--	--	--	0.18	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
DIELDRIN	UG/KG	0.715	4.3	0.02	8	0.16	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
ENDOSULFAN I	UG/KG	--	--	--	--	0.16	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
ENDOSULFAN II	UG/KG	--	--	--	--	0.26	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
ENDOSULFAN SULFATE	UG/KG	--	--	--	--	0.23	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
ENDRIN	UG/KG	--	--	--	--	0.168	0.17 U	0.17 U	0.17 U	0.17 U	0.16 U
ENDRIN ALDEHYDE	UG/KG	--	--	--	--	0.36	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
GAMMA-BHC (LINDANE)	UG/KG	0.32	0.99	--	--	0.14	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
HEPTACHLOR	UG/KG	--	--	--	--	0.16	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
HEPTACHLOR EPOXIDE	UG/KG	--	--	--	--	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
METHOXYCHLOR	UG/KG	--	--	--	--	0.368	0.37 U	0.37 U	0.37 U	0.37 U	0.36 U
MIREX	UG/KG	--	--	--	--	0.23	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
TOXAPHENE	UG/KG	--	--	--	--	2.28	2.3 U	2.3 U	2.3 U	2.3 U	2.2 U

**Source:* MacDonald et al. 1996 Ecotoxicology 5: 253-278

NOTE: shaded and bold values represent detected concentrations
TEL = threshold effects level
PEL = probable effects level
ERL = effects range low
ERM = effects range median
AVGRL = average reporting limit
U = compound was analyzed but not detected

TABLE A-85. ORGANOPHOSPHOROUS PESTICIDE CONCENTRATIONS (UG/KG) IN PROPOSED SEAGIRT BORROW MATERIAL

PROPOSED MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND
Samples Collected June 2006

ANALYTE	UNITS	AVGRL	EA-01/02-SED	EA-03/04-SED	EA-05/06-SED	EA-07/08-SED	EA-09/10-SED
AZINPHOS-METHYL	UG/KG	8.36	8.4 U	8.3 U	8.4 U	8.4 U	8.3 U
DEMETON (TOTAL)	UG/KG	16	16 U	16 U	16 U	16 U	16 U
MALATHION	UG/KG	5.8	5.8 U	5.8 U	5.8 U	5.8 U	5.8 U
METHYL PARATHION	UG/KG	5.92	5.9 U	5.9 U	6 U	5.9 U	5.9 U
PARATHION	UG/KG	7.18	7.2 U	7.2 U	7.2 U	7.2 U	7.1 U

There are no TEL and PEL values for organophosphorus pesticides.

NOTE: shaded and bold values represent detected concentrations
AVGRL = average reporting limit
U = compound was analyzed but not detected

TABLE A-86. DIOXIN AND FURAN CONGENER CONCENTRATIONS (PG/G) IN PROPOSED MASONVILLE BORROW MATERIAL

PROPOSED MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND
Samples Collected June 2006

ANALYTE	UNITS	AVGRL	EA-01/02-SED	EA-03/04-SED	EA-05/06-SED	EA-07/08-SED	EA-09/10-SED
2,3,7,8-TCDD	PG/G	0.298	0.29 U	0.27 U	0.3 U	0.33 U	0.3 U
1,2,3,7,8-PECDD	PG/G	0.1198	0.11 U	0.099 U	0.13 U	0.13 U	0.13 U
1,2,3,4,7,8-HXCDD	PG/G	0.1082	0.091 U	0.1 U	0.11 U	0.12 U	**0.15 Q J**
1,2,3,6,7,8-HXCDD	PG/G	0.122	0.1 U	**0.2 J**	0.12 U	**0.3 J**	**1 Q J**
1,2,3,7,8,9-HXCDD	PG/G	0.1102	**0.19 Q J**	0.11 U	0.11 U	**0.27 J**	**0.53 Q J**
1,2,3,4,6,7,8-HPCDD	PG/G	0.14	**5.2 B**	**1.7 B J**	**1.5 B J**	**5.7 B**	**18 B**
OCDD	PG/G	0.19	**91 B**	**30 B**	**25 B**	**130 B**	**350 B**
2,3,7,8-TCDF	PG/G	0.194	0.2 U	0.19 U	0.18 U	0.2 U	0.2 U
1,2,3,7,8-PECDF	PG/G	0.0838	0.078 U	0.088 U	0.086 U	0.09 U	0.077 U
2,3,4,7,8-PECDF	PG/G	0.0672	0.064 U	0.071 U	0.064 U	0.073 U	0.064 U
1,2,3,4,7,8-HXCDF	PG/G	0.0556	0.054 U	0.059 U	0.047 U	0.056 U	0.062 U
1,2,3,6,7,8-HXCDF	PG/G	0.0542	0.049 U	0.056 U	0.046 U	0.058 U	0.062 U
2,3,4,6,7,8-HXCDF	PG/G	0.0586	0.055 U	0.065 U	0.05 U	0.059 U	0.064 U
1,2,3,7,8,9-HXCDF	PG/G	0.0776	0.074 U	0.086 U	0.062 U	0.077 U	0.089 U
1,2,3,4,6,7,8-HPCDF	PG/G	0.0842	0.075 U	**0.3 B J**	0.079 U	**0.25 Q B J**	0.085 U
1,2,3,4,7,8,9-HPCDF	PG/G	0.11	0.1 U	0.13 U	0.1 U	0.1 U	0.12 U
OCDF	PG/G	0.154	**0.14 Q B J**	**0.69 B J**	**0.19 Q B J**	**0.56 B J**	0.16 U
WHO TEQ (ND=0)	PG/G	--	**0.019**	**0.02**	**0**	**0.057**	**0.168**
WHO TEQ (ND=1/2DL)	PG/G	--	**5.994**	**5.97**	**6.225**	**5.757**	**5.6435**

There are no TEL and PEL values for dioxin and furan congeners.

NOTE: shaded and bold values represent detected concentrations
AVGRL = average reporting limit
U = compound was analyzed but not detected
J = compound was detected, but below the reporting limit (value is estimated)
Q = estimated maximum possible concentration
B = compound was detected in method blank

TABLE A-87. BUTYLTIN CONCENTRATIONS (UG/KG) IN PROPOSED MASONVILLE BORROW MATERIAL PROPOSED MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND
Samples Collected June 2006

ANALYTE	UNITS	AVGRL	EA-01/02-SED	EA-03/04-SED	EA-05/06-SED	EA-07/08-SED	EA-09/10-SED
DIBUTYLTIN	UG/KG	0.32	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
MONOBUTYLTIN	UG/KG	0.52	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U
TETRABUTYLTIN	UG/KG	0.41	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U
TRIBUTYLTIN	UG/KG	0.57	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U

There are no TEL and PEL values for butyltins.

NOTE: shaded and bold values represent detected concentrations
AVGRL = average reporting limit
U = compound was analyzed but not detected

TABLE A-88. VOLATILE ORGANIC COMPOUND (VOC) CONCENTRATIONS (UG/KG) IN PROPOSED SEAGIRT BORROW MATERIAL PROPOSED MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND
Samples Collected June 2006

ANALYTE	UNITS	AVGRL	EA-01/02-SED	EA-03/04-SED	EA-05/06-SED	EA-07/08-SED	EA-09/10-SED
1,1,1-TRICHLOROETHANE	UG/KG	0.342	0.39 U	0.3 U	0.32 U	0.34 U	0.36 U
1,1,2,2-TETRACHLOROETHANE	UG/KG	0.564	0.64 U	0.5 U	0.53 U	0.56 U	0.59 U
1,1,2-TRICHLOROETHANE	UG/KG	0.854	0.97 U	0.75 U	0.8 U	0.85 U	0.9 U
1,1-DICHLOROETHANE	UG/KG	0.362	0.41 U	0.32 U	0.34 U	0.36 U	0.38 U
1,1-DICHLOROETHENE	UG/KG	0.742	0.84 U	0.65 U	0.7 U	0.74 U	0.78 U
1,2-DICHLOROBENZENE	UG/KG	1.16	1.3 U	1 U	1.1 U	1.2 U	1.2 U
1,2-DICHLOROETHANE	UG/KG	0.38	0.43 U	0.33 U	0.36 U	0.38 U	0.4 U
1,2-DICHLOROPROPANE	UG/KG	0.788	0.9 U	0.69 U	0.74 U	0.78 U	0.83 U
1,3-DICHLOROBENZENE	UG/KG	1.14	1.3 U	1 U	1.1 U	1.1 U	1.2 U
1,4-DICHLOROBENZENE	UG/KG	0.862	0.98 U	0.76 U	0.81 U	0.86 U	0.9 U
2-BUTANONE (MEK)	UG/KG	1.76	2 U	1.5 U	1.7 U	1.8 U	1.8 U
2-CHLOROETHYL VINYL ETHER	UG/KG	11.4	13 U	10 U	11 U	11 U	12 U
ACROLEIN	UG/KG	118	140 U	100 U	110 U	120 U	120 U
ACRYLONITRILE	UG/KG	33.2	38 U	29 U	31 U	33 U	35 U
BENZENE	UG/KG	0.688	0.78 U	0.61 U	0.65 U	0.68 U	0.72 U
BROMODICHLOROMETHANE	UG/KG	0.316	0.36 U	0.28 U	0.3 U	0.31 U	0.33 U
BROMOFORM	UG/KG	0.77	0.87 U	0.68 U	0.72 U	0.77 U	0.81 U
BROMOMETHANE	UG/KG	1.16	1.3 U	1 U	1.1 U	1.2 U	1.2 U
CARBON TETRACHLORIDE	UG/KG	0.316	0.36 U	0.28 U	0.3 U	0.31 U	0.33 U
CHLOROETHANE	UG/KG	1.16	1.3 U	1 U	1.1 U	1.2 U	1.2 U
CHLOROFORM	UG/KG	0.316	0.36 U	0.28 U	0.3 U	0.31 U	0.33 U
CHLOROMETHANE	UG/KG	0.362	0.41 U	0.32 U	0.34 U	0.36 U	0.38 U
CIS-1,3-DICHLOROPROPENE	UG/KG	0.362	0.41 U	0.32 U	0.34 U	0.36 U	0.38 U
DIBROMOCHLOROMETHANE	UG/KG	0.328	0.37 U	0.29 U	0.31 U	0.33 U	0.34 U
DICHLORODIFLUOROMETHANE	UG/KG	0.636	0.72 U	0.56 U	0.6 U	0.63 U	0.67 U
ETHYLBENZENE	UG/KG	1.16	1.3 U	1 U	1.1 U	1.2 U	1.2 U
METHYLENE CHLORIDE	UG/KG	1.68	**6 J**	**2.7 J B**	**5.1 J B**	**3.2 J B**	**4.6 J B**
TETRACHLOROETHENE	UG/KG	0.964	1.1 U	0.85 U	0.91 U	0.96 U	1 U
TOLUENE	UG/KG	0.742	0.84 U	0.65 U	0.7 U	0.74 U	0.78 U
TRANS-1,2-DICHLOROETHENE	UG/KG	0.82	0.93 U	0.72 U	0.77 U	0.82 U	0.86 U
TRANS-1,3-DICHLOROPROPENE	UG/KG	0.348	0.39 U	0.31 U	0.33 U	0.35 U	0.36 U
TRICHLOROETHENE	UG/KG	1.07	1.2 U	0.95 U	1 U	1.1 U	1.1 U
TRICHLOROFLUOROMETHANE	UG/KG	1.5	1.7 U	1.3 U	1.4 U	1.5 U	1.6 U
VINYL CHLORIDE	UG/KG	0.828	0.94 U	0.73 U	0.78 U	0.82 U	0.87 U

There are no TEL and PEL values for volatiles.

NOTE: shaded and bold values represent detected concentrations
AVGRL = average reporting lmit
U = compound was analyzed but not detected
J = compound was detected but below the reporting limit (value is estimated)
B = compound was detected in method blank

TABLE A-89. SEMIVOLATILE ORGANIC COMPOUND (SVOC) CONCENTRATIONS (UG/KG) IN PROPOSED SEAGIRT BORROW MATERIAL PROPOSED MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND

Samples Collected June 2006

ANALYTE	UNITS	TEL*	PEL*	AVGRL	EA-01/02-SED	EA-03/04-SED	EA-05/06-SED	EA-07/08-SED	EA-09/10-SED
1,2,4-TRICHLOROBENZENE	UG/KG	--	--	8	13 U	6.7 U	6.8 U	6.8 U	6.7 U
1,2-DIPHENYLHYDRAZINE	UG/KG	--	--	9.14	15 U	7.7 U	7.7 U	7.7 U	7.6 U
2,4,6-TRICHLOROPHENOL	UG/KG	--	--	6.76	11 U	5.7 U	5.7 U	5.7 U	5.7 U
2,4-DICHLOROPHENOL	UG/KG	--	--	7.42	12 U	6.3 U	6.3 U	6.3 U	6.2 U
2,4-DIMETHYLPHENOL	UG/KG	--	--	6.48	11 U	5.3 U	5.4 U	5.4 U	5.3 U
2,4-DINITROPHENOL	UG/KG	--	--	1004	1700 U	830 U	840 U	830 U	820 U
2,4-DINITROTOLUENE	UG/KG	--	--	4.18	6.9 U	3.5 U	3.5 U	3.5 U	3.5 U
2,6-DINITROTOLUENE	UG/KG	--	--	5.68	9.4 U	4.7 U	4.8 U	4.8 U	4.7 U
2-CHLORONAPHTHALENE	UG/KG	--	--	8.44	14 U	7 U	7.1 U	7.1 U	7 U
2-CHLOROPHENOL	UG/KG	--	--	6.2	10 U	5.2 U	5.3 U	5.3 U	5.2 U
2-METHYLPHENOL	UG/KG	--	--	8.94	15 U	7.4 U	7.5 U	7.4 U	7.4 U
2-NITROPHENOL	UG/KG	--	--	7.18	12 U	6 U	6 U	6 U	5.9 U
3,3'-DICHLOROBENZIDINE	UG/KG	--	--	9.76	16 U	8.2 U	8.3 U	8.2 U	8.1 U
4,6-DINITRO-2-METHYLPHENOL	UG/KG	--	--	1004	1700 U	830 U	840 U	830 U	820 U
4-BROMOPHENYL PHENYL ETHER	UG/KG	--	--	20	33 U	17 U	17 U	17 U	16 U
4-CHLORO-3-METHYLPHENOL	UG/KG	--	--	8.6	14 U	7.2 U	7.3 U	7.3 U	7.2 U
4-CHLOROPHENYL PHENYL ETHER	UG/KG	--	--	8.22	14 U	6.8 U	6.8 U	6.8 U	6.7 U
4-METHYLPHENOL	UG/KG	--	--	8.96	15 U	7.4 U	7.5 U	7.5 U	7.4 U
4-NITROPHENOL	UG/KG	--	--	5.36	8.9 U	4.5 U	4.5 U	4.5 U	4.4 U
BENZOIC ACID	UG/KG	--	--	332	550 U	280 U	280 U	280 U	270 U
BENZYL ALCOHOL	UG/KG	--	--	45	75 U	37 U	38 U	38 U	37 U
BIS(2-CHLOROETHOXY)METHANE	UG/KG	--	--	8.96	15 U	7.4 U	7.5 U	7.5 U	7.4 U
BIS(2-CHLOROETHYL) ETHER	UG/KG	--	--	7.78	13 U	6.5 U	6.5 U	6.5 U	6.4 U
BIS(2-CHLOROISOPROPYL) ETHER	UG/KG	--	--	5.78	9.6 U	4.8 U	4.9 U	4.8 U	4.8 U
BIS(2-ETHYLHEXYL) PHTHALATE	UG/KG	182.16	2646.51	24.8	41 U	21 U	21 U	21 U	20 U
BUTYL BENZYL PHTHALATE	UG/KG	--	--	8.9	15 U	7.4 U	7.4 U	7.4 U	7.3 U
DIBENZOFURAN	UG/KG	--	--	8.98	15 U	7.5 U	7.5 U	7.5 U	7.4 U
DIETHYL PHTHALATE	UG/KG	--	--	7.98	13 U	6.7 U	6.8 U	6.7 U	6.7 U
DIMETHYL PHTHALATE	UG/KG	--	--	8.36	14 U	6.9 U	7 U	7 U	6.9 U
DI-N-BUTYL PHTHALATE	UG/KG	--	--	48.6	81 U	40 U	41 U	41 U	40 U
DI-N-OCTYL PHTHALATE	UG/KG	--	--	9.14	15 U	7.7 U	7.7 U	7.7 U	7.6 U
HEXACHLOROBENZENE	UG/KG	--	--	7.94	13 U	6.7 U	6.7 U	6.7 U	6.6 U
HEXACHLOROBUTADIENE	UG/KG	--	--	7.82	13 U	6.5 U	6.6 U	6.5 U	6.5 U
HEXACHLOROCYCLOPENTADIENE	UG/KG	--	--	32	53 U	27 U	27 U	27 U	26 U
HEXACHLOROETHANE	UG/KG	--	--	7.7	13 U	6.4 U	6.4 U	6.4 U	6.3 U
ISOPHORONE	UG/KG	--	--	7.68	13 U	6.3 U	6.4 U	6.4 U	6.3 U
NITROBENZENE	UG/KG	--	--	13	21 U	11 U	11 U	11 U	11 U
N-NITROSODIMETHYLAMINE	UG/KG	--	--	100.4	170 U	83 U	84 U	83 U	82 U
N-NITROSODI-N-PROPYLAMINE	UG/KG	--	--	8	13 U	6.7 U	6.8 U	6.8 U	6.7 U
N-NITROSODIPHENYLAMINE	UG/KG	--	--	83.2	140 U	69 U	70 U	69 U	68 U
PENTACHLOROPHENOL	UG/KG	--	--	548	910 U	460 U	460 U	460 U	450 U
PHENOL	UG/KG	--	--	8.28	14 U	6.8 U	6.9 U	6.9 U	6.8 U

* *Source* : MacDonald et al. 1996. Ecotoxicology 5: 253-278.

NOTE: shaded and bold values represent detected concentrations
TEL = threshold effects level
PEL = probably effects level
AVGRL = average reporting limit
U = compound was analyzed but not detected

TABLE A-90. PHYSICAL PARAMETERS FOR SEAGIRT SITE WATER PROPOSED MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND
Samples Collected June 2006

ANALYTE	UNITS	AVGDL	SGT06-SW
PH	NO UNITS	0.1	8

TABLE A-91. GENERAL CHEMISTRY CONCENTRATIONS OF SEAGIRT SITE WATER AND STANDARD ELUTRIATES PROPOSED MASONVILLE DREDGED MATERIAL CONTAINMENT FACILTIY, BALTIMORE HARBOR, MARYLAND
Samples Collected June 2006

ANALYTE	UNITS	USEPA ACUTE CRITERIA*	USEPA CHRONIC CRITERIA*	AVGDL	SGT06-SW	EA-01/02-SED	EA-03/04-SED	EA-05/06-SED	EA-07/08-SED	EA-09/10-SED
AMMONIA AS NITROGEN	MG/L	43	6.4	0.049	**0.08 B**	**4.8 J**	**0.72 J**	**0.91 J**	**2 J**	**2.2 J**
BIOCHEMICAL OXYGEN DEMAND	MG/L	--	--	0.79	**2.3**	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U
CHEMICAL OXYGEN DEMAND	MG/L	--	--	14	**499**	**278**	**332**	**324**	**330**	**417**
CYANIDE, DISSOLVED	UG/L	--	--	4.3	4.3 U	4.3 U	**14**	4.3 U	4.3 U	4.3 U
NITRATE-NITRITE	MG/L	--	--	0.01	0.01 U	**0.13**	**0.048 B**	**0.061 B**	**0.012 B**	**0.024 B**
TOTAL KJELDAHL NITROGEN	MG/L	--	--	0.97	1.9 U	0.97 U	**2.4 B**	**1.2 B**	**9**	**3**
TOTAL ORGANIC CARBON	MG/L	--	--	0.31	**1.3**	**1.5**	**0.92 B**	**0.96 B**	**0.93 B**	**1.5**
TOTAL PHOSPHORUS	MG/L	--	--	0.044	**0.2 J**	**0.066 B**	**0.18**	**0.16**	**0.16**	**0.063 B**
TOTAL SULFIDE	MG/L	--	--	1.2	1.2 U	**2.4 B**	1.2 U	1.2 U	**1.6 B**	**1.6 B**

*USEPA 2004. *Recommended Water Quality Criteria*

NOTE: shaded and bold values represent detected concentrations; cells shaded green exceed the chronic EPA value
AVGDL = average detection limit
B = compound was detected but below the reporting limit (value is estimated)
J = compound was detected in method blank
U = compound was analyzed but not detected

TABLE A-92. METAL CONCENTRATIONS (UG/L) IN SEAGIRT SITE WATER AND STANDARD ELUTRIATES
PROPOSED MASONVILLE DREDGED MATERIAL CONTAINMENT FACILTIY, BALTIMORE HARBOR, MARYLAND
Samples Collected June 2006

ANALYTE	UNITS	USEPA ACUTE CRITERIA*	USEPA CHRONIC CRITERIA*	AVGDL	SGT06-SW	EA-01/02-SED	EA-03/04-SED	EA-05/06-SED	EA-07/08-SED	EA-09/10-SED
ALUMINUM	UG/L	--	--	22.5	**1320**	**1120**	**1430**	**912**	**1120**	**381**
ANTIMONY	UG/L	--	--	0.42	**0.99 B**	0.42 U	**0.9 B**	0.42 U	0.42 U	**1.4 B**
ARSENIC	UG/L	69	36	0.61	**5.5**	**5.8**	**4.7 B**	**8.8**	**6.1**	**7.2**
BERYLLIUM	UG/L	--	--	0.33	0.33 U	**0.64 B**	0.33 U	**0.5 B**	0.33 U	0.33 U
CADMIUM	UG/L	40	8.8	0.37	**0.41 B**	0.37 U	0.37 U	0.37 U	0.37 U	**0.38 B J**
CHROMIUM	UG/L	1100	50	1.4	**18.1 J**	**5.1 B**	**10.8**	**6.3 B**	**7.5 B**	**4.8 B**
CHROMIUM, HEXAVALENT	MG/L	1.1	0.05	0.0018	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U
COBALT	UG/L	--	--	0.16	**2.6**	**29.2**	**2.9**	**2.9**	**9.3**	**0.65 B**
COPPER	UG/L	4.8	3.1	0.56	**15.6 ab**	**4.3 B b**	**4.5 B b**	**2.6 B**	**1.7 B**	**2.1 B**
IRON	UG/L	--	--	30.9	**2840**	**27200 J**	**1970 J**	**956 J**	**1940 J**	**305 J**
LEAD	UG/L	210	8.1	0.013	**8.6 J b**	**0.56 B**	**1.4 B**	**0.6 B**	**0.68 B**	**0.21 B**
MANGANESE	UG/L	--	--	0.42	**140 E**	**1470**	**995**	**1320**	**1940**	**565**
MERCURY	UG/L	1.8	0.94	0.048	**0.07 B**	**0.084 B J**	**0.058 B J**	**0.095 B J**	**0.089 B J**	**0.063 B J**
NICKEL	UG/L	74	8.2	0.99	**5.3**	**51.6 b**	**2.9 B**	**1.8 B**	**5.7**	0.99 U
SELENIUM	UG/L	290	71	0.95	**15.8 B**	**12.1 B J**	**17.7 B J**	**10.1 B J**	**9.2 B J**	**14.6 B J**
SILVER	UG/L	1.9	--	1.5	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
THALLIUM	UG/L	--	--	0.029	**0.41 B**	0.029 U	**0.14 B**	0.029 U	0.029 U	0.029 U
TIN	UG/L	--	--	11.2	**40.1 J**	**12.2 B**	**18.7 B**	**17.7 B**	**12.6 B**	**15.1 B**
ZINC	UG/L	90	81	3.7	**33**	**60.6**	**7.4 B**	**24.4 B**	**6.4 B**	3.7 U

*USEPA 2004. *Recommended Water Quality Criteria*

NOTE: shaded and bold values represent detected concentrations; cells shaded green exceed the chronic EPA value; cells shaded orange exceed both the chronic and acute EPA value

AVGDL = average detection limit
B (inorganic) = compound was detected, but below reporting limit (value is estimated)
U = compound was analyzed but not detected
J (inorganic) = compound was detected in method blank
a = value greater than EPA acute criteria
b = value greater than EPA chronic criteria

TABLE A-93. PCB CONGENER CONCENTRATIONS (NG/L) IN SEAGIRT SITE WATER AND STANDARD ELUTRIATES PROPOSED MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND
Samples Collected June 2006

ANALYTE	UNITS	USEPA ACUTE CRITERIA*	USEPA CHRONIC CRITERIA*	AVGDL	SGT06-SW	EA-01/02-SED	EA-03/04-SED	EA-05/06-SED	EA-07/08-SED	EA-09/10-SED
PCB 8 (BZ)	NG/L	--	--	0.368	0.42 U	0.37 U	0.37 U	0.36 U	0.37 U	0.37 U
PCB 18 (BZ)	NG/L	--	--	0.37	0.46 U	0.38 U	0.37 U	0.36 U	0.37 U	0.37 U
PCB 28 (BZ)	NG/L	--	--	0.426	**0.41 J PG**	0.43 U	0.42 U	0.42 U	0.43 U	0.43 U
PCB 44 (BZ)	NG/L	--	--	0.44	**0.47 J**	0.45 U	0.44 U	**0.5 J**	0.44 U	0.44 U
PCB 49 (BZ)	NG/L	--	--	0.266	**0.82 J**	0.27 U	0.26 U	**0.28 J PG**	0.27 U	0.27 U
PCB 52 (BZ)	NG/L	--	--	0.416	**0.85 J**	0.42 U	0.41 U	**0.46 J PG**	0.42 U	0.42 U
PCB 66 (BZ)	NG/L	--	--	0.468	**1.4**	0.47 U	0.47 U	0.46 U	0.47 U	0.47 U
PCB 77 (BZ)	NG/L	--	--	0.46	0.42 U	0.47 U	0.46 U	0.45 U	0.46 U	0.46 U
PCB 87 (BZ)	NG/L	--	--	0.416	0.39 U	0.42 U	0.41 U	0.41 U	0.42 U	0.42 U
PCB 101 (BZ)	NG/L	--	--	0.46	0.39 U	0.47 U	0.46 U	0.45 U	0.46 U	0.46 U
PCB 105 (BZ)	NG/L	--	--	0.45	0.36 U	0.46 U	0.45 U	0.44 U	0.45 U	0.45 U
PCB 118 (BZ)	NG/L	--	--	0.47	**0.51 J PG**	0.48 U	0.47 U	0.46 U	0.47 U	0.47 U
PCB 126 (BZ)	NG/L	--	--	0.306	0.37 U	0.31 U	0.3 U	0.3 U	0.31 U	0.31 U
PCB 128 (BZ)	NG/L	--	--	0.48	0.34 U	0.49 U	0.48 U	0.47 U	0.48 U	0.48 U
PCB 138 (BZ)	NG/L	--	--	0.47	0.32 U	0.48 U	0.47 U	0.46 U	0.47 U	0.47 U
PCB 153 (BZ)	NG/L	--	--	0.44	**0.48 J**	0.45 U	0.44 U	0.43 U	0.44 U	0.44 U
PCB 156 (BZ)	NG/L	--	--	0.42	0.36 U	0.43 U	0.42 U	0.41 U	0.42 U	0.42 U
PCB 169 (BZ)	NG/L	--	--	0.23	0.41 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
PCB 170 (BZ)	NG/L	--	--	0.22	**0.41 J**	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
PCB 180 (BZ)	NG/L	--	--	0.282	0.35 U	0.29 U	0.28 U	0.28 U	0.28 U	0.28 U
PCB 183 (BZ)	NG/L	--	--	0.48	0.35 U	0.49 U	0.48 U	0.47 U	0.48 U	0.48 U
PCB 184 (BZ)	NG/L	--	--	0.22	0.4 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
PCB 187 (BZ)	NG/L	--	--	0.466	0.37 U	0.47 U	0.46 U	0.46 U	0.47 U	0.47 U
PCB 195 (BZ)	NG/L	--	--	0.276	0.37 U	0.28 U	0.27 U	0.27 U	0.28 U	0.28 U
PCB 206 (BZ)	NG/L	--	--	0.292	**0.53 J**	0.3 U	0.29 U	0.29 U	0.29 U	0.29 U
PCB 209 (BZ)	NG/L	--	--	0.25	0.42 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
TOTAL PCBs (ND=0)	NG/L	--	30	--	**9.06**	**0**	**0**	**1.92**	**0**	**0**
TOTAL PCBs (ND=1/2DL)	NG/L	--	30	--	**19.51**	**17.64**	**17.28**	**17.12**	**17.46**	**17.46**

*USEPA 2004. *Recommended Water Quality Criteria*

NOTE: shaded and bold values represent detected concentrations
AVGDL = average detection limit
U = compound was analyzed but not detected
J (inorganic) = compound was detected in method blank
PG = the percent difference between between the original and confirmation analysis is greater than 40%

TABLE A-94. PCB AROCLOR CONCENTRATIONS (UG/L) IN SEAGIRT SITE WATER AND STANDARD ELUTRIATES PROPOSED MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND
Samples Collected June 2006

ANALYTE	UNITS	AVGDL	SGT06-SW	EA-01/02-SED	EA-03/04-SED	EA-05/06-SED	EA-07/08-SED	EA-09/10-SED
AROCLOR 1016	UG/L	0.482	0.47 U	0.47 U	0.49 U	0.49 U	0.48 U	0.48 U
AROCLOR 1221	UG/L	0.442	0.43 U	0.43 U	0.45 U	0.45 U	0.44 U	0.44 U
AROCLOR 1232	UG/L	0.522	0.51 U	0.51 U	0.53 U	0.53 U	0.52 U	0.52 U
AROCLOR 1242	UG/L	0.248	0.24 U	0.24 U	0.25 U	0.25 U	0.25 U	0.25 U
AROCLOR 1248	UG/L	0.336	0.32 U	0.33 U	0.34 U	0.34 U	0.33 U	0.34 U
AROCLOR 1254	UG/L	0.346	0.34 U	0.34 U	0.35 U	0.35 U	0.34 U	0.35 U
AROCLOR 1260	UG/L	0.57	0.55 U	0.56 U	0.58 U	0.58 U	0.56 U	0.57 U

NOTE: shaded and bold values represent detected concentrations
AVGDL = average detection limit
U = compound was anlyzed but not detected

TABLE A-95. PAH CONCENTRATIONS (UG/L) IN SEAGIRT SITE WATER AND STANDARD ELUTRIATES
PROPOSED MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND
Samples Collected June 2006

ANALYTE	UNITS	AVGDL	SGT06-SW	EA-01/02-SED	EA-03/04-SED	EA-05/06-SED	EA-07/08-SED	EA-09/10-SED
1-METHYLNAPHTHALENE	UG/L	0.0828	**0.037 J**	0.083 U	0.084 U	0.082 U	0.082 U	0.083 U
2-METHYLNAPHTHALENE	UG/L	0.0492	**0.061 J**	0.049 U	0.05 U	0.049 U	0.049 U	0.049 U
ACENAPHTHENE	UG/L	0.0376	**0.058 J**	**0.054 J**	**0.084 J**	**0.072 J**	**0.078 J**	**0.059 J**
ACENAPHTHYLENE	UG/L	0.0346	0.033 U	0.035 U	0.035 U	0.034 U	0.034 U	0.035 U
ANTHRACENE	UG/L	0.0242	**0.039 J**	0.024 U	0.025 U	**0.024 J**	0.024 U	0.024 U
BENZO(A)ANTHRACENE	UG/L	0.0212	**0.037 J**	0.021 U	0.022 U	**0.04 J**	0.021 U	0.021 U
BENZO(A)PYRENE	UG/L	0.0242	0.072 U	0.024 U	0.025 U	0.024 U	0.024 U	0.024 U
BENZO(B)FLUORANTHENE	UG/L	0.0242	0.04 U	0.024 U	0.025 U	0.024 U	0.024 U	0.024 U
BENZO(GHI)PERYLENE	UG/L	0.0296	0.12 U	0.03 U	0.03 U	0.029 U	0.029 U	0.03 U
BENZO(K)FLUORANTHENE	UG/L	0.02	0.057 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
CHRYSENE	UG/L	0.02	**0.039 J**	0.02 U	0.02 U	**0.024 J**	0.02 U	0.02 U
DIBENZO(A,H)ANTHRACENE	UG/L	0.0302	0.14 U	0.03 U	0.031 U	0.03 U	0.03 U	0.03 U
FLUORANTHENE	UG/L	0.031	**0.11 J**	0.031 U	0.031 U	**0.19 J**	0.031 U	0.031 U
FLUORENE	UG/L	0.036	**0.077 J**	**0.064 J**	**0.089 J**	**0.071 J**	**0.09 J**	**0.064 J**
INDENO(1,2,3-CD)PYRENE	UG/L	0.0242	0.099 U	0.024 U	0.025 U	0.024 U	0.024 U	0.024 U
NAPHTHALENE	UG/L	0.0376	**0.098 J**	**0.053 J**	**0.092 J**	**0.094 J**	**0.086 J**	**0.048 J**
PHENANTHRENE	UG/L	0.031	**0.29**	**0.21**	**0.28**	**0.31**	**0.24**	**0.2**
PYRENE	UG/L	0.0236	**0.067 J**	0.024 U	0.024 U	**0.11 J**	0.023 U	0.024 U
TOTAL PAHs (ND=0)	UG/L	--	**0.913**	**0.381**	**0.545**	**0.935**	**0.494**	**0.371**
TOTAL PAHs (ND=1/2DL)	UG/L	--	**1.578**	**1.781**	**1.945**	**1.835**	**1.894**	**1.771**

NOTE: shaded and bold values represent detected concentrations
AVGDL = average detection
J = compound was detected, but below the reporting limit (value is estimated)
U = compound was analyzed but not detected

TABLE A-96. ORGANOPHOSPHORUS PESTICIDE CONCENTRATIONS (UG/L) IN SEAGIRT SITE WATER AND STANDARD ELUTRIATES PROPOSED MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND
Samples Collected June 2006

ANALYTE	UNITS	USEPA ACUTE CRITERIA*	USEPA CHRONIC CRITERIA*	AVGDL	SGT06-SW	EA-01/02-SED	EA-03/04-SED	EA-05/06-SED	EA-07/08-SED	EA-09/10-SED
AZINPHOS-METHYL	UG/L	--	0.1	0.27	0.12 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
DEMETON (TOTAL)	UG/L	--	0.1	0.732	0.36 U	0.72 U	0.73 U	0.73 U	0.74 U	0.74 U
MALATHION	UG/L	--	0.1	0.24	0.067 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
METHYL PARATHION	UG/L	--	--	0.264	0.04 U	0.26 U	0.26 U	0.26 U	0.27 U	0.27 U
PARATHION	UG/L	--	--	0.234	0.077 U	0.23 U	0.23 U	0.23 U	0.24 U	0.24 U

*USEPA 2004. *Recommended Water Quality Criteria*

NOTE: shaded and bold values represent detected concentrations
AVGDL = average detection limit
U = compoundwas analyzed but not detected

TABLE A-97. CHLORINATED PESTICIDE CONCENTRATIONS (UG/L) IN SEAGIRT SITE WATER AND STANDARD ELUTRIATES
PROPOSED MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND
Samples Collected June 2006

ANALYTE	UNITS	USEPA ACUTE	USEPA CHRONIC CRITERIA*	AVGDL	SGT06-SW	EA-01/02-SED	EA-03/04-SED	EA-05/06-SED	EA-07/08-SED	EA-09/10-SED
4,4'-DDD	UG/L	--	--	0.0154	0.036 U	0.015 U	0.016 U	0.016 U	0.015 U	0.015 U
4,4'-DDE	UG/L	--	--	0.015	0.03 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
4,4'-DDT	UG/L	0.13	0.001	0.0144	0.032 U	0.014 U	0.015 U	0.015 U	0.014 U	0.014 U
ALDRIN	UG/L	1.3	--	0.0138	0.036 U	0.013 U	0.014 U	0.014 U	0.014 U	0.014 U
ALPHA-BHC	UG/L	--	--	0.0136	0.031 U	0.013 U	**0.029 J**	0.014 U	0.013 U	0.014 U
BETA-BHC	UG/L	--	--	0.0158	0.031 U	0.015 U	0.016 U	0.016 U	0.016 U	0.016 U
CHLORDANE (TECHNICAL)	UG/L	0.09	0.004	0.17	0.048 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
CHLOROBENSIDE	UG/L	--	--	0.0308	0.06 U	0.03 U	0.031 U	0.031 U	0.031 U	0.031 U
DCPA	UG/L	--	--	0.0308	0.06 U	0.03 U	0.031 U	0.031 U	0.031 U	0.031 U
DELTA-BHC	UG/L	--	--	0.0158	0.033 U	0.015 U	0.016 U	0.016 U	0.016 U	0.016 U
DIELDRIN	UG/L	0.71	0.0019	0.0156	0.042 U	0.015 U	0.016 U	0.016 U	0.015 U	0.016 U
ENDOSULFAN I	UG/L	0.034	0.0087	0.015	0.031 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
ENDOSULFAN II	UG/L	0.034	0.0087	0.0274	0.043 U	0.027 U	0.028 U	0.028 U	0.027 U	0.027 U
ENDOSULFAN SULFATE	UG/L	--	--	0.0166	0.047 U	0.016 U	0.017 U	0.017 U	0.016 U	0.017 U
ENDRIN	UG/L	0.037	0.0023	0.0146	0.035 U	0.014 U	0.015 U	0.015 U	0.014 U	0.015 U
ENDRIN ALDEHYDE	UG/L	--	--	0.0158	0.03 U	0.015 U	0.016 U	0.016 U	0.016 U	0.016 U
GAMMA-BHC (LINDANE)	UG/L	0.16	--	0.014	0.027 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
HEPTACHLOR	UG/L	0.053	0.0036	0.0136	0.029 U	0.013 U	0.014 U	0.014 U	0.013 U	0.014 U
HEPTACHLOR EPOXIDE	UG/L	0.053	0.0036	0.015	0.044 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
METHOXYCHLOR	UG/L	--	0.03	0.0306	0.057 U	0.03 U	0.031 U	0.031 U	0.03 U	0.031 U
MIREX	UG/L	--	0.001	0.0168	0.033 U	0.016 U	0.017 U	0.017 U	0.017 U	0.017 U
TOXAPHENE	UG/L	0.21	0.0002	0.0702	0.16 U	0.069 U	0.071 U	0.071 U	0.07 U	0.07 U

*USEPA 2004. *Recommended Water Quality Criteria*

NOTE: shaded and bold values represent detected concentrations
AVGDL = average detection limit
U = compound was analyzed but not detected
J = compound was detected, but below the reporting limit (value is estimated)

TABLE A-98. BUTYLTIN CONCENTRATIONS (UG/L) IN SEAGIRT SITE WATER AND STANDARD ELUTRIATES
PROPOSED MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY
Samples Collected June 2006

ANALYTE	UNITS	AVGDL	SGT06-SW	EA-01/02-SED	EA-03/04-SED	EA-05/06-SED	EA-07/08-SED	EA-09/10-SED
DIBUTYLTIN	UG/L	0.01	**0.067 B**	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
MONOBUTYLTIN	UG/L	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
TETRABUTYLTIN	UG/L	0.0086	0.0086 U	0.0086 U	0.0086 U	0.0086 U	0.0086 U	0.0086 U
TRIBUTYLTIN	UG/L	0.012	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U

NOTE: shaded and bold values represent detected concentrations
AVGDL = average detection limit
B = compound was detected in method blank
U = compound was analyzed but not detected

TABLE A-99. DIOXIN AND FURAN CONCENTRATIONS (PG/L) IN SEAGIRT SITE WATER AND STANDARD ELUTRIATES PROPOSED MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND
Samples Collected June 2006

ANALYTE	UNITS	AVGDL	SGT06-SW	EA-01/02-SED	EA-03/04-SED	EA-05/06-SED	EA-07/08-SED	EA-09/10-SED
2,3,7,8-TCDD	PG/L	2.82	1.9 U	2.2 U	3.4 U	2.4 U	3.6 U	2.5 U
1,2,3,7,8-PECDD	PG/L	1.398	0.93 U	0.99 U	1.9 U	1.1 U	1.7 U	1.3 U
1,2,3,4,7,8-HXCDD	PG/L	1.156	0.96 U	0.92 U	1.7 U	0.91 U	1.3 U	0.95 U
1,2,3,6,7,8-HXCDD	PG/L	1.318	**18 J**	1.1 U	2 U	0.99 U	1.4 U	1.1 U
1,2,3,7,8,9-HXCDD	PG/L	1.156	**7.6 J**	0.93 U	1.7 U	0.88 U	1.3 U	0.97 U
1,2,3,4,6,7,8-HPCDD	PG/L	1.48	**74**	1.1 U	2.3 U	1.1 U	1.7 U	**5.8 J**
OCDD	PG/L	1.62	**760 B**	**16 B J**	**30 B J**	**17 Q B J**	**26 B J**	**170 B**
2,3,7,8-TCDF	PG/L	1.92	1.4 U	1.5 U	2.4 U	1.7 U	2.3 U	1.7 U
1,2,3,7,8-PECDF	PG/L	0.97	**1.7 Q J**	0.69 U	1.4 U	0.78 U	1.1 U	**1.2 Q J**
2,3,4,7,8-PECDF	PG/L	0.8	**1.5 Q J**	0.55 U	1.2 U	0.62 U	0.89 U	0.74 U
1,2,3,4,7,8-HXCDF	PG/L	0.55	**3.5 Q J**	0.39 U	0.79 U	0.48 U	0.61 U	0.48 U
1,2,3,6,7,8-HXCDF	PG/L	0.548	**1.6 J**	0.38 U	0.79 U	0.49 U	0.61 U	0.47 U
2,3,4,6,7,8-HXCDF	PG/L	0.618	**0.83 Q J**	0.43 U	0.97 U	0.5 U	0.66 U	0.53 U
1,2,3,7,8,9-HXCDF	PG/L	0.716	**1.4 J**	0.53 U	1 U	0.63 U	0.79 U	0.63 U
1,2,3,4,6,7,8-HPCDF	PG/L	0.858	**21 J**	0.67 U	1.2 U	0.65 U	1.1 U	0.67 U
1,2,3,4,7,8,9-HPCDF	PG/L	1.132	**2.3 Q J**	0.9 U	1.6 U	0.9 U	1.4 U	0.86 U
OCDF	PG/L	1.68	**37 B J**	**2.4 Q J**	3.1 U	1.2 U	1.7 U	1.2 U
WHO TEQ (ND=0)	PG/L	--	**5.101**	**0.00024**	**0**	**0**	**0**	**0.118**
WHO TEQ (ND=1/2DL)	PG/L	--	**36.726**	**62.44524**	**62.505**	**61.2549**	**62.505**	**61.06795**

NOTE: shaded and bold values represent detected concentrations
AVGDL = average detection limit
U = compound was analyzed but not detected
J = compound was detected, but below the reporting limit (value is estimated)
B = compound was detected in method blank
Q = Estimated maximum possible concentration

TABLE A-100. SEMIVOLATILE ORGANIC COMPOUND (SVOC) CONCENTRATIONS (UG/L) IN SEAGIRT SITE WATER AND STANDARD ELUTRIATES
PROPOSED MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND
Samples Collected June 2006

ANALYTE	UNITS	USEPA ACUTE CRITERIA*	USEPA CHRONIC CRITERIA*	AVGDL	SGT06-SW	EA-01/02-SED	EA-03/04-SED	EA-05/06-SED	EA-07/08-SED	EA-09/10-SED
1,2,4-TRICHLOROBENZENE	UG/L	--	--	1.36	5.8 U	1.4 U	1.4 U	1.3 U	1.3 U	1.4 U
1,2-DIPHENYLHYDRAZINE	UG/L	--	--	1.3	3.2 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
2,4,6-TRICHLOROPHENOL	UG/L	--	--	1.5	2.9 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
2,4-DICHLOROPHENOL	UG/L	--	--	1.3	3.2 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
2,4-DIMETHYLPHENOL	UG/L	--	--	1.8	3.3 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
2,4-DINITROPHENOL	UG/L	--	--	14.6	21 U	15 U	15 U	14 U	14 U	15 U
2,4-DINITROTOLUENE	UG/L	--	--	1.3	5 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
2,6-DINITROTOLUENE	UG/L	--	--	1.4	1 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
2-CHLORONAPHTHALENE	UG/L	--	--	1.4	5.6 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
2-CHLOROPHENOL	UG/L	--	--	1.4	2.8 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
2-METHYLPHENOL	UG/L	--	--	1.5	2.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
2-NITROPHENOL	UG/L	--	--	2.96	3.3 U	3 U	3 U	2.9 U	2.9 U	3 U
3,3'-DICHLOROBENZIDINE	UG/L	--	--	25	6.5 U	25 U	25 U	25 U	25 U	25 U
4,6-DINITRO-2-METHYLPHENOL	UG/L	--	--	9.52	19 U	9.5 U	9.6 U	9.5 U	9.5 U	9.5 U
4-BROMOPHENYL PHENYL ETHER	UG/L	--	--	1.2	0.95 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
4-CHLORO-3-METHYLPHENOL	UG/L	--	--	1.3	1 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
4-CHLOROPHENYL PHENYL ETHER	UG/L	--	--	1.6	1.4 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U
4-METHYLPHENOL	UG/L	--	--	3.46	1.4 U	3.5 U	3.5 U	3.4 U	3.4 U	3.5 U
4-NITROPHENOL	UG/L	--	--	1.76	16 U	1.8 U	1.8 U	1.7 U	1.7 U	1.8 U
BENZOIC ACID	UG/L	--	--	38.6	4.9 U	39 U	39 U	38 U	38 U	39 U
BENZYL ALCOHOL	UG/L	--	--	1.9	7.6 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
BIS(2-CHLOROETHOXY)METHANE	UG/L	--	--	3.4	3.8 U	3.4 U	3.4 U	3.4 U	3.4 U	3.4 U
BIS(2-CHLOROETHYL) ETHER	UG/L	--	--	1.4	2.3 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
BIS(2-CHLOROISOPROPYL) ETHER	UG/L	--	--	1.7	5.9 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
BIS(2-ETHYLHEXYL) PHTHALATE	UG/L	--	--	0.898	**9 J**	**4.4 J**	**4.5 J**	**2 J**	**2.8 J**	**9 J**
BUTYL BENZYL PHTHALATE	UG/L	--	--	0.996	2.8 U	1 U	1 U	0.99 U	0.99 U	1 U
DIBENZOFURAN	UG/L	--	--	1.5	5.8 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
DIETHYL PHTHALATE	UG/L	--	--	1.1	1.4 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
DIMETHYL PHTHALATE	UG/L	--	--	1.22	1.2 U	1.2 U	1.3 U	1.2 U	1.2 U	1.2 U
DI-N-BUTYL PHTHALATE	UG/L	--	--	1.1	1.2 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
DI-N-OCTYL PHTHALATE	UG/L	--	--	0.938	1.5 U	0.94 U	0.95 U	0.93 U	0.93 U	0.94 U
HEXACHLOROBENZENE	UG/L	--	--	0.0126	0.024 U	0.012 U	0.013 U	0.013 U	0.012 U	0.013 U
HEXACHLOROBUTADIENE	UG/L	--	--	1.46	7.8 U	1.5 U	1.5 U	1.4 U	1.4 U	1.5 U
HEXACHLOROCYCLOPENTADIENE	UG/L	--	--	6.18	1 U	6.2 U	6.3 U	6.1 U	6.1 U	6.2 U
HEXACHLOROETHANE	UG/L	--	--	1.36	6.8 U	1.4 U	1.4 U	1.3 U	1.3 U	1.4 U
ISOPHORONE	UG/L	--	--	1.4	6 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
NITROBENZENE	UG/L	--	--	1.42	2.2 U	1.4 U	1.5 U	1.4 U	1.4 U	1.4 U
N-NITROSODIMETHYLAMINE	UG/L	--	--	1.7	1.1 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
N-NITROSODI-N-PROPYLAMINE	UG/L	--	--	1.5	3.7 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
N-NITROSODIPHENYLAMINE	UG/L	--	--	4.12	3 U	4.1 U	4.2 U	4.1 U	4.1 U	4.1 U
PENTACHLOROPHENOL	UG/L	13	7.9	0.808	20 U	0.81 U	0.82 U	0.8 U	0.8 U	0.81 U
PHENOL	UG/L	--	--	1.96	2.6 U	2 U	2 U	1.9 U	1.9 U	2 U

*USEPA 2004. *Recommended Water Quality Criteria*

NOTE: shaded and bold values represent detected concentrations
AVGDL = average detection limit
U = compound was analyzed but not detected
J = compound was detected, but below the reporting limit (value is estimated)

TABLE A-101. VOLATILE ORGANIC COMPOUND (VOC) CONCENTRATIONS (UG/L) IN SEAGIRT SITE WATER AND STANDARD ELUTRIATES PROPOSED MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND
Samples Collected June 2006

ANALYTE	UNITS	AVGDL	SGT06-SW	EA-01/02-SED	EA-03/04-SED	EA-05/06-SED	EA-07/08-SED	EA-09/10-SED
1,1,1-TRICHLOROETHANE	UG/L	0.1	1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,1,2,2-TETRACHLOROETHANE	UG/L	0.19	1.7 U		0.19 U	0.19 U	0.19 U	0.19 U
1,1,2-TRICHLOROETHANE	UG/L	0.22	0.57 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
1,1-DICHLOROETHANE	UG/L	0.15	0.86 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
1,1-DICHLOROETHENE	UG/L	0.43	1.2 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
1,2-DICHLOROBENZENE	UG/L	1.32	7 U	1.3 U	1.4 U	1.3 U	1.3 U	1.3 U
1,2-DICHLOROETHANE	UG/L	0.11	0.56 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
1,2-DICHLOROPROPANE	UG/L	0.28	1.3 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
1,3-DICHLOROBENZENE	UG/L	1.26	4.9 U	1.3 U	1.3 U	1.2 U	1.2 U	1.3 U
1,4-DICHLOROBENZENE	UG/L	1.3	4.9 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
2-BUTANONE (MEK)	UG/L	1.2	2.3 U	**7.3**	1.2 U	**2.3 J**	**1.6 J**	**1.5 J**
ACROLEIN	UG/L	20	59 U	20 U	20 U	20 U	20 U	20 U
ACRYLONITRILE	UG/L	10	11 U	10 U	10 U	10 U	10 U	10 U
BENZENE	UG/L	0.18	1.3 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
BROMODICHLOROMETHANE	UG/L	0.16	0.78 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
BROMOFORM	UG/L	0.21	2.2 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
BROMOMETHANE	UG/L	0.3	1.4 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
CARBON TETRACHLORIDE	UG/L	0.15	0.58 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
CHLOROETHANE	UG/L	0.27	3.7 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
CHLOROFORM	UG/L	0.11	0.73 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
CHLOROMETHANE	UG/L	0.093	1 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U
CIS-1,3-DICHLOROPROPENE	UG/L	0.14	0.95 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
DIBROMOCHLOROMETHANE	UG/L	0.22	1.9 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
DICHLORODIFLUOROMETHANE	UG/L	0.16	1.6 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
ETHYLBENZENE	UG/L	0.15	1.7 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
METHYLENE CHLORIDE	UG/L	0.13	1.1 U	**10**	**4.7**	**8.2**	**3.7**	**5.2**
TETRACHLOROETHENE	UG/L	0.14	0.66 U	0.14 U	0.14 U	**0.15 J**	0.14 U	0.14 U
TOLUENE	UG/L	0.11	0.61 U	**0.14 J**	0.11 U	**0.15 J**	0.11 U	0.11 U
TRANS-1,2-DICHLOROETHENE	UG/L	0.23	1.2 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
TRANS-1,3-DICHLOROPROPENE	UG/L	0.15	0.28 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
TRICHLOROETHENE	UG/L	0.2	1.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRICHLOROFLUOROMETHANE	UG/L	0.14	1.3 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
VINYL CHLORIDE	UG/L	0.14	1.1 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U

NOTE: shaded and bold values represent detected concentrations
AVGDL = average detection limit
U = compound was analyzed but not detected
J = compound was detected, but below the reporting limit

TABLE A-102. GENERAL CHEMISTRY PARAMETERS IN SITEWATER COLLECTED IN THE SEAGIRT DREDGING AREA

ANALYTE	EPA ACUTE	EPA CHRONIC	UNITS	AVGDL	RS-EQB	SGT06-SW	SGT06-SW-RS
AMMONIA AS NITROGEN	43	6.4	MG/L	0.049	0.049 U	**0.08 B**	**0.3**
BIOCHEMICAL OXYGEN DEMAND	--	--	MG/L	0.79	--	**2.3**	--
BIOCHEMICAL OXYGEN DEMAND (5 DAY)	--	--	MG/L	0.79	**3.9**	--	0.79 U
CHEMICAL OXYGEN DEMAND	--	--	MG/L	14	--	**499**	--
CHEMICAL OXYGEN DEMAND (COD)	--	--	MG/L	4.2	**12 B**	--	**429**
CYANIDE, TOTAL	1	1	UG/L	4.3	--	4.3 U	--
HEXAVALENT CHROMIUM	1.1	0.05	MG/L	0.0018	**0.002 B**	--	0.0018 U
NITRATE-NITRITE	--	--	MG/L	0.01	0.01 U	0.01 U	**0.035 B**
PH	--	--	NO UNITS	--	**6.8**	--	**7.5**
TOTAL CYANIDE	1	1	UG/L	4.3	**6 B ab**	--	**4.3 B ab**
TOTAL KJELDAHL NITROGEN	--	--	MG/L	1.9	1.9 U	1.9 U	1.9 U
TOTAL ORGANIC CARBON	--	--	MG/L	0.31	0.31 U	**1.3**	**1.6**
TOTAL PHOSPHORUS	--	--	MG/L	0.04	**0.072 B**	**0.2 J**	**0.065 B**
TOTAL SULFIDE	--	0.002	MG/L	1.2	1.2 U	1.2 U	1.2 U
PH	--	--	NO UNITS	0.1	--	**8**	--

Detected
Exeeds Chronic
Exceeds Acute

AVGDL = average detection limit
B = compound was detected but below the reporting limit (value is estimated)
J = compound was detected in method blank
U = compound was analyzed but not detected
a = value greater than EPA acute criteria
b = value greater than EPA chronic criteria

TABLE A-103. METAL CONCENTRATIONS (UG/L) FROM SITEWATER COLLECTED IN THE SEAGIRT DREDGING AREA

ANALYTE	EPA ACUTE	CHRONIC	UNITS	AVGDL	RS-EQB	SGT06-SW	SGT06-SW-RS
ALUMINUM	--	--	UG/L	16.50	**14.4 B**	**1320**	**177**
ANTIMONY	--	--	UG/L	0.31	0.084 U	**0.99 B**	0.42 U
ARSENIC	69	36	UG/L	0.45	**0.44 B**	**5.5**	**5.3**
BERYLLIUM	--	--	UG/L	0.24	0.066 U	0.33 U	0.33 U
CADMIUM	40	8.8	UG/L	0.27	0.074 U	**0.41 B**	0.37 U
CHROMIUM	1100	50	UG/L	1.02	**1.9 B**	**18.1 J**	**3.3 B**
CHROMIUM, HEXAVALENT	1.1	0.05	MG/L	0.00	--	0.0018 U	--
COBALT	--	--	UG/L	0.12	0.032 U	**2.6**	0.16 U
COPPER	4.8	3.1	UG/L	0.41	**0.18 B**	**15.6 ab**	**2.6 B**
IRON	--	--	UG/L	22.67	6.2 U	**2840**	**172 B**
LEAD	210	8.1	UG/L	0.10	**0.23 B**	**8.6 J b**	**0.98 B**
MANGANESE	--	--	UG/L	0.31	0.084 U	**140 E**	**98.9**
MERCURY	1.8	0.94	UG/L	0.05	0.048 U	**0.07 B**	0.048 U
NICKEL	74	8.2	UG/L	0.73	0.2 U	**5.3**	**2.8 B**
SELENIUM	290	71	UG/L	0.70	0.19 U	**15.8 B**	**11.1 B**
SILVER	1.9	--	UG/L	1.10	0.31 U	1.5 U	1.5 U
THALLIUM	--	--	UG/L	0.21	0.059 U	**0.41 B**	0.29 U
TIN	--	--	UG/L	8.20	**9.2**	**40.1 J**	11.2 U
ZINC	90	81	UG/L	2.72	**5.1 J**	**33**	**8.1 B J**

Detected
b - Exeeds Chronic
a - Exceeds Acute

AVGDL = average detection limit
B = compound was detected but below the reporting limit (value is estimated)
J = compound was detected in method blank
U = compound was analyzed but not detected
E = Estimated value because of interference
a = value greater than EPA acute criteria
b = value greater than EPA chronic criteria

TABLE A-104. PCB CONGENER CONCENTRATIONS (UG/L) FROM SITEWATER COLLECTED IN THE SEAGIRT DREDGING AREA

ANALYTE	EPA ACUTE	EPA CHRONIC	UNITS	AVGDL	RS-EQB	SGT06-SW	SGT06-SW-RS
PCB 8 (BZ)	--	--	NG/L	0.42	**0.81 J PG**	0.42 U	0.41 U
PCB 18 (BZ)	--	--	NG/L	0.46	**2**	0.46 U	**0.48 J**
PCB 28 (BZ)	--	--	NG/L	0.41	0.41 U	**0.41 J PG**	0.41 U
PCB 44 (BZ)	--	--	NG/L	0.41	0.41 U	**0.47 J**	0.41 U
PCB 49 (BZ)	--	--	NG/L	0.43	**11 PG**	**0.82 J**	0.42 U
PCB 52 (BZ)	--	--	NG/L	0.41	0.41 U	**0.85 J**	0.4 U
PCB 66 (BZ)	--	--	NG/L	0.48	0.48 U	**1.4**	0.47 U
PCB 77 (BZ)	--	--	NG/L	0.42	**0.7 J PG**	0.42 U	0.41 U
PCB 87 (BZ)	--	--	NG/L	0.39	0.39 U	0.39 U	0.38 U
PCB 101 (BZ)	--	--	NG/L	0.39	0.39 U	0.39 U	0.39 U
PCB 105 (BZ)	--	--	NG/L	0.36	0.36 U	0.36 U	0.36 U
PCB 118 (BZ)	--	--	NG/L	0.51	0.51 U	**0.51 J PG**	0.5 U
PCB 126 (BZ)	--	--	NG/L	0.37	0.37 U	0.37 U	0.37 U
PCB 128 (BZ)	--	--	NG/L	0.34	0.34 U	0.34 U	0.33 U
PCB 138 (BZ)	--	--	NG/L	0.32	0.32 U	0.32 U	0.32 U
PCB 153 (BZ)	--	--	NG/L	0.37	0.37 U	**0.48 J**	0.37 U
PCB 156 (BZ)	--	--	NG/L	0.36	0.36 U	0.36 U	0.35 U
PCB 169 (BZ)	--	--	NG/L	0.41	0.41 U	0.41 U	0.4 U
PCB 170 (BZ)	--	--	NG/L	0.35	0.35 U	**0.41 J**	0.35 U
PCB 180 (BZ)	--	--	NG/L	0.35	0.35 U	0.35 U	0.34 U
PCB 183 (BZ)	--	--	NG/L	0.35	0.35 U	0.35 U	0.35 U
PCB 184 (BZ)	--	--	NG/L	0.40	0.4 U	0.4 U	0.4 U
PCB 187 (BZ)	--	--	NG/L	0.37	0.37 U	0.37 U	0.37 U
PCB 195 (BZ)	--	--	NG/L	0.37	0.37 U	0.37 U	0.37 U
PCB 206 (BZ)	--	--	NG/L	0.36	0.36 U	**0.53 J**	0.36 U
PCB 209 (BZ)	--	--	NG/L	0.42	0.42 U	0.42 U	0.41 U
TOTAL PCBs (ND=0)	--	30	NG/L	--	**7.02**	**9.06**	**0.96**
TOTAL PCBs (ND=1/2DL)	--	30	NG/L	--	**21.27**	**19.51**	**16.94**

Detected

AVGDL = average detection limit

U = compound was analyzed but not detected

J = compound was detected, but below the reporting limit

PG = the percent difference between the original and confirmation analysis is greater than 40%

TABLE A-105. PCB AROCLOR CONCENTRATIONS (UG/L) FROM SITEWATER COLLECTED IN THE SEAGIRT DREDGING AREA

ANALYTE	UNITS	AVGDL	RS-EQB	SGT06-SW	SGT06-SW-RS
AROCLOR 1016	UG/L	0.47	0.48 U	0.47 U	0.46 U
AROCLOR 1221	UG/L	0.43	0.44 U	0.43 U	0.43 U
AROCLOR 1232	UG/L	0.51	0.52 U	0.51 U	0.5 U
AROCLOR 1242	UG/L	0.24	0.25 U	0.24 U	0.24 U
AROCLOR 1248	UG/L	0.32	0.33 U	0.32 U	0.32 U
AROCLOR 1254	UG/L	0.34	0.34 U	0.34 U	0.33 U
AROCLOR 1260	UG/L	0.55	0.56 U	0.55 U	0.55 U

Detected

U = compound was analyzed but not detected

TABLE A-106. PAH CONCENTRATIONS (UG/L) FROM SITEWATER COLLECTED IN THE SEAGIRT DREDGING AREA

ANALYTE	UNITS	AVGDL	RS-EQB	SGT06-SW	SGT06-SW-RS
1-METHYLNAPHTHALENE	UG/L	0.03	0.031 U	**0.037 J**	0.03 U
2-METHYLNAPHTHALENE	UG/L	0.02	**0.051 J**	**0.061 J**	0.023 U
ACENAPHTHENE	UG/L	0.04	0.037 U	**0.058 J**	0.036 U
ACENAPHTHYLENE	UG/L	0.03	0.034 U	0.033 U	0.033 U
ANTHRACENE	UG/L	0.03	**0.059 J**	**0.039 J**	**0.045 J**
BENZO(A)ANTHRACENE	UG/L	0.02	**0.073 J**	**0.037 J**	**0.06 J**
BENZO(A)PYRENE	UG/L	0.07	0.073 U	0.072 U	0.071 U
BENZO(B)FLUORANTHENE	UG/L	0.04	**0.052 J**	0.04 U	**0.051 J**
BENZO(GHI)PERYLENE	UG/L	0.12	0.12 U	0.12 U	0.11 U
BENZO(K)FLUORANTHENE	UG/L	0.06	0.058 U	0.057 U	0.057 U
CHRYSENE	UG/L	0.03	**0.069 J**	**0.039 J**	**0.054 J**
DIBENZO(A,H)ANTHRACENE	UG/L	0.14	0.14 U	0.14 U	0.14 U
FLUORANTHENE	UG/L	0.03	**0.1 J**	**0.11 J**	**0.069 J**
FLUORENE	UG/L	0.03	**0.062 J**	**0.077 J**	**0.048 J**
INDENO(1,2,3-CD)PYRENE	UG/L	0.10	0.1 U	0.099 U	0.098 U
NAPHTHALENE	UG/L	0.04	**0.11 J**	**0.098 J**	0.036 U
PHENANTHRENE	UG/L	0.04	**0.21**	**0.29**	**0.21**
PYRENE	UG/L	0.02	**0.068 J**	**0.067 J**	**0.052 J**
TOTAL PAHs (ND=0)	UG/L	--	**0.854**	**0.913**	**0.589**
TOTAL PAHs (ND=1/2DL)	UG/L	--	**1.614**	**1.578**	**1.539**

Detected

U = compound was analyzed but not detected
J = compound was detected, but below the reporting limit

TABLE A-107. CHLORINATED PESTICIDE CONCENTRATIONS (UG/L) FROM SITEWATER COLLECTED IN THE SEAGIRT DREDGING AREA

ANALYTE	EPA ACUTE	EPA CHRONIC	UNITS	AVGDL	RS-EQB	SGT06-SW	SGT06-SW-RS
HEXACHLOROBENZENE	--	--	UG/L	0.0024	0.0024 U	--	0.0024 U
4,4'-DDD	--	--	UG/L	0.0144	0.0036 U	0.036 U	**0.0041 J**
4,4'-DDE	--	--	UG/L	0.012	0.003 U	0.03 U	0.003 U
4,4'-DDT	0.13	0.001	UG/L	0.0128	0.0032 U	0.032 U	0.0032 U
ALDRIN	1.3	--	UG/L	0.0144	0.0036 U	0.036 U	0.0036 U
ALPHA-BHC	--	--	UG/L	0.0124	0.0031 U	0.031 U	0.0031 U
BETA-BHC	--	--	UG/L	0.0124	0.0031 U	0.031 U	0.0031 U
CHLORDANE (TECHNICAL)	0.09	0.004	UG/L	0.0192	0.0048 U	0.048 U	0.0048 U
CHLOROBENSIDE	--	--	UG/L	0.024	0.006 U	0.06 U	0.006 U
DCPA	--	--	UG/L	0.024	0.006 U	0.06 U	0.006 U
DELTA-BHC	--	--	UG/L	0.0132	0.0033 U	0.033 U	0.0033 U
DIELDRIN	0.71	0.0019	UG/L	0.0168	0.0042 U	0.042 U	0.0042 U
ENDOSULFAN I	0.034	0.0087	UG/L	0.0124	0.0031 U	0.031 U	0.0031 U
ENDOSULFAN II	0.034	0.0087	UG/L	0.0172	0.0043 U	0.043 U	0.0043 U
ENDOSULFAN SULFATE	--	--	UG/L	0.0188	0.0047 U	0.047 U	0.0047 U
ENDRIN	0.037	0.0023	UG/L	0.014	0.0035 U	0.035 U	0.0035 U
ENDRIN ALDEHYDE	--	--	UG/L	0.012	0.003 U	0.03 U	0.003 U
GAMMA-BHC (LINDANE)	0.16	--	UG/L	0.0108	0.0027 U	0.027 U	0.0027 U
HEPTACHLOR	0.053	0.0036	UG/L	0.0116	0.0029 U	0.029 U	0.0029 U
HEPTACHLOR EPOXIDE	0.053	0.0036	UG/L	0.0176	0.0044 U	0.044 U	0.0044 U
METHOXYCHLOR	--	0.03	UG/L	0.0228	0.0057 U	0.057 U	0.0057 U
MIREX	--	0.001	UG/L	0.0132	0.0033 U	0.033 U	0.0033 U
TOXAPHENE	0.21	0.0002	UG/L	0.064	0.016 U	0.16 U	0.016 U

Detected

U = compound was analyzed but not detected
J = compound was detected, but below the reporting limit

TABLE A-108. ORGANOPHOSPHOROUS PESTICIDE CONCENTRATIONS (UG/L) FROM SITEWATER COLLECTED IN THE SEAGIRT DREDGING AREA

ANALYTE	EPA ACUTE	EPA CHRONIC	UNITS	AVGDL	RS-EQB	SGT06-SW	SGT06-SW-RS
AZINPHOS-METHYL	--	0.1	UG/L	0.12	0.12 U	0.12 U	0.12 U
DEMETON (TOTAL)	--	0.1	UG/L	0.36	0.36 U	0.36 U	0.36 U
ETHYL PARATHION	--	--	UG/L	0.0765	0.077 U	--	0.076 U
MALATHION	--	0.1	UG/L	0.067	0.067 U	0.067 U	0.067 U
METHYL PARATHION	--	--	UG/L	0.04	0.04 U	0.04 U	0.04 U
PARATHION	--	--	UG/L	0.077	--	0.077 U	--

Detected

U = compound was analyzed but not detected

TABLE A-109. DIOXIN AND FURAN CONGENER CONCENTRATIONS (UG/L) FROM SITEWATER COLLECTED IN THE SEAGIRT DREDGING AREA

ANALYTE	UNITS	AVGDL	RS-EQB	SGT06-SW	SGT06-SW-RS
2,3,7,8-TCDD	PG/L	2.33	3.5 U	1.9 U	1.6 U
1,2,3,7,8-PECDD	PG/L	1.15	1.7 U	0.93 U	0.83 U
1,2,3,4,7,8-HXCDD	PG/L	1.15	1.7 U	0.96 U	0.78 U
1,2,3,6,7,8-HXCDD	PG/L	1.30	1.9 U	**18 J**	0.89 U
1,2,3,7,8,9-HXCDD	PG/L	1.15	1.7 U	**7.6 J**	0.78 U
1,2,3,4,6,7,8-HPCDD	PG/L	1.20	1.5 U	**74**	**2.1 J**
OCDD	PG/L	1.30	**3.3 Q B J**	**760 B**	**47 B J**
2,3,7,8-TCDF	PG/L	2.00	3 U	1.4 U	1.6 U
1,2,3,7,8-PECDF	PG/L	0.83	1.1 U	**1.7 Q J**	0.64 U
2,3,4,7,8-PECDF	PG/L	0.75	1 U	**1.5 Q J**	0.56 U
1,2,3,4,7,8-HXCDF	PG/L	0.59	0.75 U	**3.5 Q J**	0.49 U
1,2,3,6,7,8-HXCDF	PG/L	0.59	0.75 U	**1.6 J**	0.5 U
2,3,4,6,7,8-HXCDF	PG/L	0.65	0.86 U	**0.83 Q J**	0.53 U
1,2,3,7,8,9-HXCDF	PG/L	0.80	1.1 U	**1.4 J**	0.65 U
1,2,3,4,6,7,8-HPCDF	PG/L	0.93	1.3 U	**21 J**	0.72 U
1,2,3,4,7,8,9-HPCDF	PG/L	1.06	1.4 U	**2.3 Q J**	0.79 U
OCDF	PG/L	1.10	**2.2 J**	**37 B J**	**3.3 B J**
WHO TEQ (ND=0)	PG/L	--	**0.00022**	**5.101**	**0.021**
WHO TEQ (ND=1/2DL)	PG/L	--	**61.19522**	**36.726**	**60.971**

Detected

U = compound was analyzed but not detected
J = compound was detected, but below the reporting limit (value is estimated)
B = compound was detected in method blank
Q = Estimated maximum possible concentration

TABLE A-110. BUTYLTIN CONCENTRATIONS (UG/L) FROM SITEWATER COLLECTED IN THE SEAGIRT DREDGING AREA

ANALYTE	UNITS	AVGDL	RS-EQB	SGT06-SW	SGT06-SW-RS
DIBUTYLTIN	UG/L	0.01	0.01 U	**0.067 B**	0.01 U
MONOBUTYLTIN	UG/L	0.05	0.05 U	0.05 U	0.05 U
TETRABUTYLTIN	UG/L	0.0086	0.0086 U	0.0086 U	0.0086 U
TRIBUTYLTIN	UG/L	0.012	0.012 U	0.012 U	0.012 U

Detected

U = compound was analyzed but not detected
B = compound was detected in method blank

TABLE A-111. VOLATILE ORGANIC COMPOUND (VOC) CONCENTRATIONS (UG/L) FROM SITEWATER COLLECTED IN THE SEAGIRT DREDGING AREA

ANALYTE	UNITS	AVGDL	RS-EQB	SGT06-SW	SGT06-SW-RS
1,1,1-TRICHLOROETHANE	UG/L	0.60	0.4 U	1 U	0.4 U
1,1,2,2-TETRACHLOROETHANE	UG/L	0.99	0.64 U	1.7 U	0.64 U
1,1,2-TRICHLOROETHANE	UG/L	0.60	0.61 U	0.57 U	0.61 U
1,1-DICHLOROETHANE	UG/L	0.72	0.65 U	0.86 U	0.65 U
1,1-DICHLOROETHENE	UG/L	0.80	0.6 U	1.2 U	0.6 U
1,2-DICHLOROBENZENE	UG/L	7.00	---	7 U	---
1,2-DICHLOROETHANE	UG/L	0.55	0.54 U	0.56 U	0.54 U
1,2-DICHLOROPROPANE	UG/L	0.85	0.63 U	1.3 U	0.63 U
1,3-DICHLOROBENZENE	UG/L	4.90	---	4.9 U	---
1,4-DICHLOROBENZENE	UG/L	4.90	---	4.9 U	---
2-BUTANONE (MEK)	UG/L	1.63	1.3 U	2.3 U	1.3 U
ACROLEIN	UG/L	59.00	59 U	59 U	59 U
ACRYLONITRILE	UG/L	11.00	11 U	11 U	11 U
BENZENE	UG/L	0.85	0.62 U	1.3 U	0.62 U
BROMODICHLOROMETHANE	UG/L	0.58	0.48 U	0.78 U	0.48 U
BROMOFORM	UG/L	1.11	0.57 U	2.2 U	0.57 U
BROMOMETHANE	UG/L	1.01	0.81 U	1.4 U	0.81 U
CARBON TETRACHLORIDE	UG/L	0.59	0.59 U	0.58 U	0.59 U
CHLOROETHANE	UG/L	1.71	0.72 U	3.7 U	0.72 U
CHLOROFORM	UG/L	0.61	0.55 U	0.73 U	0.55 U
CHLOROMETHANE	UG/L	0.71	0.56 U	1 U	0.56 U
CIS-1,3-DICHLOROPROPENE	UG/L	0.60	0.43 U	0.95 U	0.43 U
DIBROMOCHLOROMETHANE	UG/L	1.37	1.1 U	1.9 U	1.1 U
DICHLORODIFLUOROMETHANE	UG/L	1.05	0.77 U	1.6 U	0.77 U
ETHYLBENZENE	UG/L	1.00	0.65 U	1.7 U	0.65 U
METHYLENE CHLORIDE	UG/L	0.82	0.68 U	1.1 U	0.68 U
TETRACHLOROETHENE	UG/L	0.57	0.53 U	0.66 U	0.53 U
TOLUENE	UG/L	0.56	**0.94 J**	0.61 U	0.53 U
TRANS-1,2-DICHLOROETHENE	UG/L	0.81	0.62 U	1.2 U	0.62 U
TRANS-1,3-DICHLOROPROPENE	UG/L	0.30	0.31 U	0.28 U	0.31 U
TRICHLOROETHENE	UG/L	0.81	0.56 U	1.3 U	0.56 U
TRICHLOROFLUOROMETHANE	UG/L	1.50	1.6 U	1.3 U	1.6 U
VINYL CHLORIDE	UG/L	0.81	0.67 U	1.1 U	0.67 U

Detected

U = compound was analyzed but not detected
J = compound was detected, but below the reporting limit (value is estimated)

TABLE A-112. SEMIVOLATILE ORGANIC COMPOUND (SVOC) CONCENTRATIONS (UG/L) FROM SITEWATER COLLECTED IN THE SEAGIRT DREDGING AREA

ANALYTE	EPA ACUTE	EPA CHRONIC	UNITS	AVGDL	RS-EQB	SGT06-SW	SGT06-SW-RS
1,2,4-TRICHLOROBENZENE	--	---	UG/L	5.83	5.9 U	5.8 U	5.8 U
1,2-DICHLOROBENZENE	--	---	UG/L	7.05	7.1 U	--	7 U
1,2-DIPHENYLHYDRAZINE	--	---	UG/L	3.23	3.3 U	3.2 U	3.2 U
1,3-DICHLOROBENZENE	--	---	UG/L	4.95	5 U	--	4.9 U
1,4-DICHLOROBENZENE	--	---	UG/L	4.85	4.9 U	--	4.8 U
2,4,6-TRICHLOROPHENOL	--	---	UG/L	2.93	3 U	2.9 U	2.9 U
2,4-DICHLOROPHENOL	--	---	UG/L	3.20	3.2 U	3.2 U	3.2 U
2,4-DIMETHYLPHENOL	--	---	UG/L	3.33	3.4 U	3.3 U	3.3 U
2,4-DINITROPHENOL	--	---	UG/L	21.00	21 U	21 U	21 U
2,4-DINITROTOLUENE	--	---	UG/L	4.97	5 U	5 U	4.9 U
2,6-DINITROTOLUENE	--	---	UG/L	1.03	1.1 U	1 U	1 U
2-CHLORONAPHTHALENE	--	---	UG/L	5.63	5.7 U	5.6 U	5.6 U
2-CHLOROPHENOL	--	---	UG/L	2.77	2.8 U	2.8 U	2.7 U
2-METHYLPHENOL	--	---	UG/L	2.50	2.5 U	2.5 U	2.5 U
2-NITROPHENOL	--	---	UG/L	3.27	3.3 U	3.3 U	3.2 U
3,3'-DICHLOROBENZIDINE	--	---	UG/L	6.53	6.6 U	6.5 U	6.5 U
4,6-DINITRO-2-METHYLPHENOL	--	---	UG/L	19.00	19 U	19 U	19 U
4-BROMOPHENYL PHENYL ETHER	--	---	UG/L	0.95	0.96 U	0.95 U	0.94 U
4-CHLORO-3-METHYLPHENOL	--	---	UG/L	1.00	1 U	1 U	1 U
4-CHLOROPHENYL PHENYL ETHER	--	---	UG/L	1.37	1.4 U	1.4 U	1.3 U
4-METHYLPHENOL	--	---	UG/L	1.40	1.4 U	1.4 U	1.4 U
4-NITROPHENOL	--	---	UG/L	15.67	16 U	16 U	15 U
BENZOIC ACID	--	---	UG/L	4.93	5 U	4.9 U	4.9 U
BENZYL ALCOHOL	--	---	UG/L	7.57	7.6 U	7.6 U	7.5 U
BIS(2-CHLOROETHOXY)METHANE	--	---	UG/L	3.77	3.8 U	3.8 U	3.7 U
BIS(2-CHLOROETHYL) ETHER	--	---	UG/L	2.30	2.3 U	2.3 U	2.3 U
BIS(2-CHLOROISOPROPYL) ETHER	--	---	UG/L	5.90	6 U	5.9 U	5.8 U
BIS(2-ETHYLHEXYL) PHTHALATE	--	---	UG/L	1.50	**3.8 J**	**9 J**	**3 J**
BUTYL BENZYL PHTHALATE	--	---	UG/L	2.77	2.8 U	2.8 U	2.7 U
DIBENZOFURAN	--	---	UG/L	5.80	5.9 U	5.8 U	5.7 U
DIETHYL PHTHALATE	--	---	UG/L	1.40	1.4 U	1.4 U	1.4 U
DIMETHYL PHTHALATE	--	---	UG/L	1.20	1.2 U	1.2 U	1.2 U
DI-N-BUTYL PHTHALATE	--	---	UG/L	1.20	1.2 U	1.2 U	1.2 U
DI-N-OCTYL PHTHALATE	--	---	UG/L	1.53	1.6 U	1.5 U	1.5 U
HEXACHLOROBENZENE	--	---	UG/L	0.02	--	0.024 U	--
HEXACHLOROBUTADIENE	--	---	UG/L	7.80	7.9 U	7.8 U	7.7 U
HEXACHLOROCYCLOPENTADIENE	--	---	UG/L	1.00	1 U	1 U	0.99 U
HEXACHLOROETHANE	--	---	UG/L	6.80	6.9 U	6.8 U	6.7 U
ISOPHORONE	--	---	UG/L	5.97	6 U	6 U	5.9 U
NITROBENZENE	--	---	UG/L	2.20	2.2 U	2.2 U	2.2 U
N-NITROSODIMETHYLAMINE	--	---	UG/L	1.07	1.1 U	1.1 U	1 U
N-NITROSODI-N-PROPYLAMINE	--	---	UG/L	3.73	3.8 U	3.7 U	3.7 U
N-NITROSODIPHENYLAMINE	--	---	UG/L	3.00	3 U	3 U	3 U
PENTACHLOROPHENOL	13	7.9	UG/L	20.00	20 U	20 U	20 U
PHENOL	--	--	UG/L	2.63	2.7 U	2.6 U	2.6 U

Detected

U = compound was analyzed but not detected
J = compound was detected, but below the reporting limit (value is estimated)

TABLE A-113. METAL CONCENTRATIONS (UG/L) IN STANDARD ELUTRIATES FOR THE SEAGIRT DREDGING AREA

ANALYTE	EPA ACUTE	EPA CHRONIC	UNITS	AVGDL	EA-01/02-SED	EA-01/02-SED RE	EA-03/04-SED	EA-03/04-SED RE	EA-05/06-SED	EA-05/06-SED RE	EA-07/08-SED	EA-07/08-SED RE	EA-09/10-SED	EA-09/10-SED RE	ELUTRIATE BLANK
ALUMINUM	--	--	UG/L	20.8636364	**1120**	**724**	**1430**	**218**	**912**	**458**	**1120**	**199**	**381**	**302**	4.5 U
ANTIMONY	--	--	UG/L	0.38945455	0.42 U	0.42 U	**0.9 B**	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	**1.4 B**	0.42 U	**0.095 B**
ARSENIC	69	36	UG/L	0.56545455	**5.8**	**5.2**	**4.7 B**	**5.6**	**8.8**	**3.3 B**	**6.1**	**5**	**7.2**	**5.7**	**0.66 B**
BERYLLIUM	--	--	UG/L	0.306	**0.64 B**	**1.4 B**	0.33 U	0.33 U	**0.5 B**	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.066 U
CADMIUM	40	8.8	UG/L	0.34309091	0.37 U	**2.4 B**	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	**0.38 B J**	0.37 U	0.074 U
CHROMIUM	1100	50	UG/L	1.29727273	**5.1 B**	**4.2 B J**	**10.8**	**4 B J**	**6.3 B**	**4.7 B J**	**7.5 B**	**4.8 B J**	**4.8 B**	**5.4 B J**	**1.9 B**
CHROMIUM, HEXAVALENT	1.1	0.05	MG/L	0.0018	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U
COBALT	--	--	UG/L	0.14836364	**29.2**	**281**	**2.9**	**88.6**	**2.9**	**16**	**9.3**	**1.9 B**	**0.65 B**	**1.3 B**	0.032 U
COPPER	4.8	3.1	UG/L	0.51909091	**4.3 B b**	**2 B**	**4.5 B b**	**2.7 B**	**2.6 B**	**4.3 B b**	**1.7 B**	**2.5 B**	**2.1 B**	**2.9 B**	**0.12 B**
IRON	--	--	UG/L	28.6545455	**27200 J**	**18100**	**1970 J**	**237 B**	**956 J**	**384**	**1940 J**	**475**	**305 J**	**356**	**6.4 B J**
LEAD	210	8.1	UG/L	1.21E-02	**0.56 B**	**0.64 B**	**1.4 B**	**0.37 B**	**0.6 B**	**0.34 B**	**0.68 B**	**0.57 B**	**0.21 B**	**0.28 B**	**0.15 B**
MANGANESE	--	--	UG/L	0.38945455	**1470**	**2610 J E**	**995**	**5000 J**	**1320**	**754 J**	**1940**	**1530 J**	**565**	**491 J**	0.084 U
MERCURY	1.8	0.94	UG/L	0.048	**0.084 B J**	0.048 U	**0.058 B J**	0.048 U	**0.095 B J**	0.048 U	**0.089 B J**	0.048 U	**0.063 B J**	0.048 U	**0.051 B J**
NICKEL	74	8.2	UG/L	0.91818182	**51.6 b**	**206 E ab**	**2.9 B**	**31.7 b**	**1.8 B**	**20.9 b**	**5.7**	**6.1**	0.99 U	**3.7 B**	**0.38 B**
SELENIUM	290	71	UG/L	0.88090909	**12.1 B J**	**14.8 B**	**17.7 B J**	**18 B**	**10.1 B J**	**15.9 B**	**9.2 B J**	**14.7 B**	**14.6 B J**	**15.9 B**	0.19 U
SILVER	1.9	--	UG/L	1.39181818	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	0.31 U
THALLIUM	--	--	UG/L	0.0269	0.029 U	**0.25 B**	**0.14 B**	**0.3 B**	0.029 U	**0.065 B**	0.029 U	0.029 U	0.029 U	0.029 U	**0.1 B**
TIN	--	--	UG/L	10.3818182	**12.2 B**	**23.5 B J**	**18.7 B**	**23.4 B J**	**17.7 B**	**20.7 B J**	**12.6 B**	**18.6 B J**	**15.1 B**	**19 B J**	**9.2**
ZINC	90	81	UG/L	3.43181818	**60.6**	**838 E ab**	**7.4 B**	**44.4**	**24.4 B**	**7.1 B**	**6.4 B**	**6.7 B**	3.7 U	**5.9 B**	**3.5 B**

Detected
Exeeds Chronic
Exceeds Acute

U = compound was analyzed but not detected
J = compound was detected, but below the reporting limit (value is estimated)
B = compound was detected in method blank
E = Estimated value because of interference

ATTACHMENT A-1

PUBLISHED GROUNDWATER INFORMATION

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Water Resources

Data Category: Ground Water | Geographic Area: United States | go

USGS 391410076354101 5S2E- 1

Available data for this site | Site home page | GO

Site Description

LOCATION
Latitude 39°14'10", Longitude 76°35'41" NAD27,
Baltimore City County, Maryland , Hydrologic Unit 02060003

SITE TYPE:
Ground Water

DESCRIPTION
The depth of the well is not determined.
Altitude of land surface datum 52 feet above sea level NGVD29.
This well is completed in the PATUXENT FORMATION (217PTXN) local aquifer.

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Water Quality Samples	1943-07-31	1943-07-31	1

OPERATION:
Record for this site is maintained by the USGS Maryland Water Science Center

CONTACT INFORMATION
Email questions about this site to Water Webserver Team

Questions about data Water Webserver Team Top
Feedback on this website NWISWeb Support Team Explanation of terms
Ground-water Site Information for USA: Ground-water Site Inventory
http://waterdata.usgs.gov/nwis/gwsi?

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0.87 0.67 va04

Water Resources

Data Category: Ground Water | Geographic Area: United States | go

USGS 391436076361301 4S1E- 1

Available data for this site | Site home page | GO

Site Description

LOCATION
Latitude 39°14'36", Longitude 76°36'13" NAD27,
Baltimore City County, Maryland , Hydrologic Unit 02060003

SITE TYPE:
Ground Water

DESCRIPTION
The depth of the well is 234 feet below land surface.
Altitude of land surface datum 5 feet above sea level NGVD29.
This well is completed in the PATUXENT FORMATION (217PTXN) local aquifer.

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Water Quality Samples	1943-07-15	1943-07-15	1

OPERATION:
Record for this site is maintained by the USGS Maryland Water Science Center

CONTACT INFORMATION
Email questions about this site to Water Webserver Team

Water Resources

Data Category: Ground Water | Geographic Area: United States | go

USGS 391456076345601 4S2E- 2

Available data for this site | Site home page | GO

Site Description

LOCATION
Latitude 39°14'56", Longitude 76°34'56" NAD27,
Baltimore City County, Maryland , Hydrologic Unit 02060003

SITE TYPE:
Ground Water

DESCRIPTION
The depth of the well is not determined.
The depth of the hole is 293 feet below land surface.
Altitude of land surface datum 10 feet above sea level NGVD29.
This well is completed in the PATUXENT FORMATION (217PTXN) local aquifer.

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Water Quality Samples	1943-07-15	1943-07-15	1

OPERATION:
Record for this site is maintained by the USGS Maryland Water Science Center

CONTACT INFORMATION
Email questions about this site to Water Webserver Team

U.S. Environmental Protection Agency

Safe Drinking Water Information System (SDWIS)

Query Results

Report an Error

Query Selections:
State selected: **MARYLAND**
County selected: **BALTIMORE CITY**
Population Selected: **Very Small (0-500), Small (501-3,300), Medium (3,301-10,000), Large (10,001-100,000), Very Large (100,000+)**
water_system_status: **Both--Active/Closed**
Query executed on: **MAR-22-2006**
Results are based on data extracted on: **OCT-14-2005**

List of Water Systems in SDWIS

Information about water systems in MARYLAND is maintained by MARYLAND .

For a detailed Violation and Enforcement History, click on the underlined Water System Name. To obtain additional information about drinking water please call EPA's Safe Drinking Water hotline at 1-800-426-4791.

Community Water Systems: Water Systems that serve the same people year-round (e.g. in homes or businesses).

Water System Name	Principal County Served	Population Served	Primary Water Source Type	System Status	Date Closed	Water System ID
BALTIMORE CITY	BALTIMORE CITY	1600000	Surface water	Active		MD0300002

Non-Transient Non-Community Water Systems: Water Systems that serve the same people, but not year-round (e.g. schools that have their own water system).

Water System Name	Principal County Served	Population Served	Primary Water Source Type	System Status	Date Closed	Water System ID
THE JOHNS HOPKINS HOSPITAL	BALTIMORE CITY	8500	Purchased surface water	Closed		MD1300001
BROWNING-FERRIS INDUSTRIES	BALTIMORE CITY	25	Ground water	Closed	09/01/1996	MD1030057

Transient Non-Community Water Systems: Water Systems that do not consistently serve the same people (e.g. rest stops, campgrounds, gas stations).

Water System Name	Principal County Served	Population Served	Primary Water Source Type	System Status	Date Closed	Water System ID
AMERICAN LEGION #34 (DEL.)	BALTIMORE CITY	25	Ground water	Closed	03/01/1993	MD1021016
HILLTOP INN	BALTIMORE CITY	25	Ground water	Closed	03/01/1993	MD1021148
WHITE MOUNTAIN CREAMERY	BALTIMORE CITY	25	Ground water	Closed	03/01/1993	MD1031174
WILDWOOD A.A. INC.	BALTIMORE CITY	25	Ground water	Closed	03/01/1993	MD1031242
WOODLAWN COUNTRY CLUB	BALTIMORE CITY	25	Ground water	Closed	03/01/1993	MD1031244
CAMP SHADOWBROOK (CAMP)	BALTIMORE CITY	200	Ground water	Closed	03/01/1993	MD1071036
RAYVILLE STORE	BALTIMORE CITY	25	Ground water	Closed	03/01/1999	MD1031216

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ATTACHMENT A-2

GRAINSIZE ANALYSIS OF SURFICIAL SEDIMENTS COLLECTED NOVEMBER 2005

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EBA ENGINEERING, INC.
Seton Business Park
4813 Seton Drive
BALTIMORE, MARYLAND 21215

(410) 358-7171 FAX (410) 358-7213

LETTER OF TRANSMITTAL

DATE	December 2, 2005	JOB NO.	3115-02
ATTENTION	Mr. Frank Pine		
RE:	Masonville Sediment Sample Testing		

TO EA Engineering Science & Technology, Inc.
15 Loveton Circle
Sparks, Maryland 21152

WE ARE SENDING YOU [X] Attached [ ] Under separate cover via _____ the following items:

[ ] Shop drawings [ ] Prints [ ] Plans [ ] Samples [ ] Specifications
[ ] Copy of letter [ ] Change order [ ] _____

COPIES	DATE	No.	DESCRIPTION
1	12/02/05	5	Particle Size Distribution (EB/ELU01A, EB/ELU05A, EB/ELU06, EB/ELU08 & EB/ELU09)

THESE ARE TRANSMITTED as checked below:

[ ] For approval [ ] Approved as submitted [ ] Resubmit _____ copies for approval
[ ] For your use [ ] Approved as noted [ ] Submit _____ copies for distribution
[X] As requested [ ] Returned for corrections [ ] Resubmit _____ corrected prints
[ ] For review and comment [ ] _____
[ ] FOR BIDS DUE _____ [ ] PRINTS RETURNED AFTER LOAN TO US

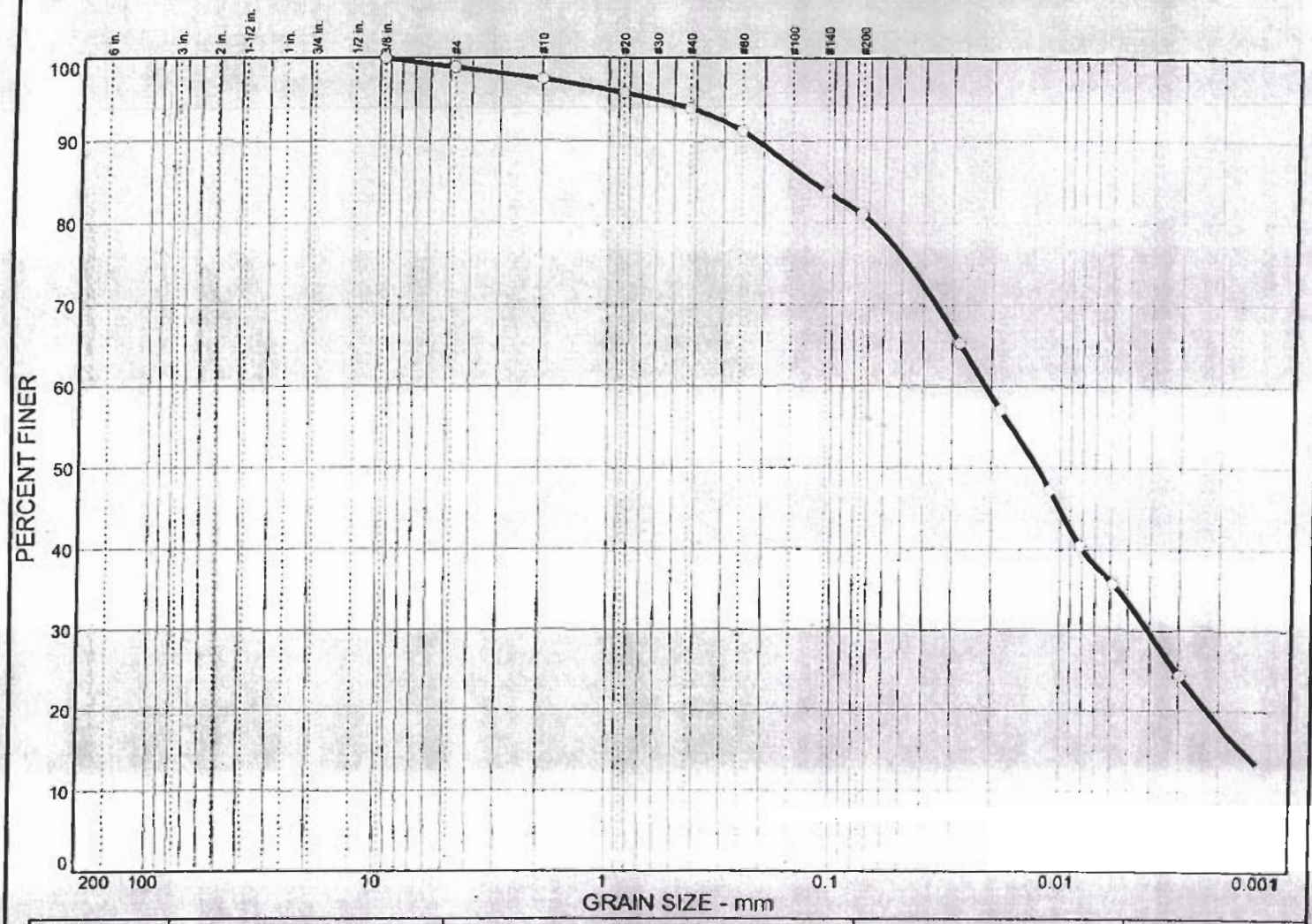
REMARKS

Copy to: File

Signed: Steven W. Diggins, P.E.
Vice President

If enclosures are not as noted, kindly notify us at once.

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	1.1	17.8	47.5	33.6

LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
---	---	0.123	0.0213	0.0126	0.0041	0.0015			

MATERIAL DESCRIPTION	USCS	AASHTO
Dark gray organic silt with sand	OH	---

Project No. 3115Z0239 **Client:** EA Engineering,Science,and Technologe,Inc.

Project: MPA Masonville Sediment Sample Testing

Source: EB/ELUO1A **Elev./Depth:** ---

Remarks:

Tested by: RP

Checked by: GG

Moisture Content: 155.2%

USDA Class: Silt loam

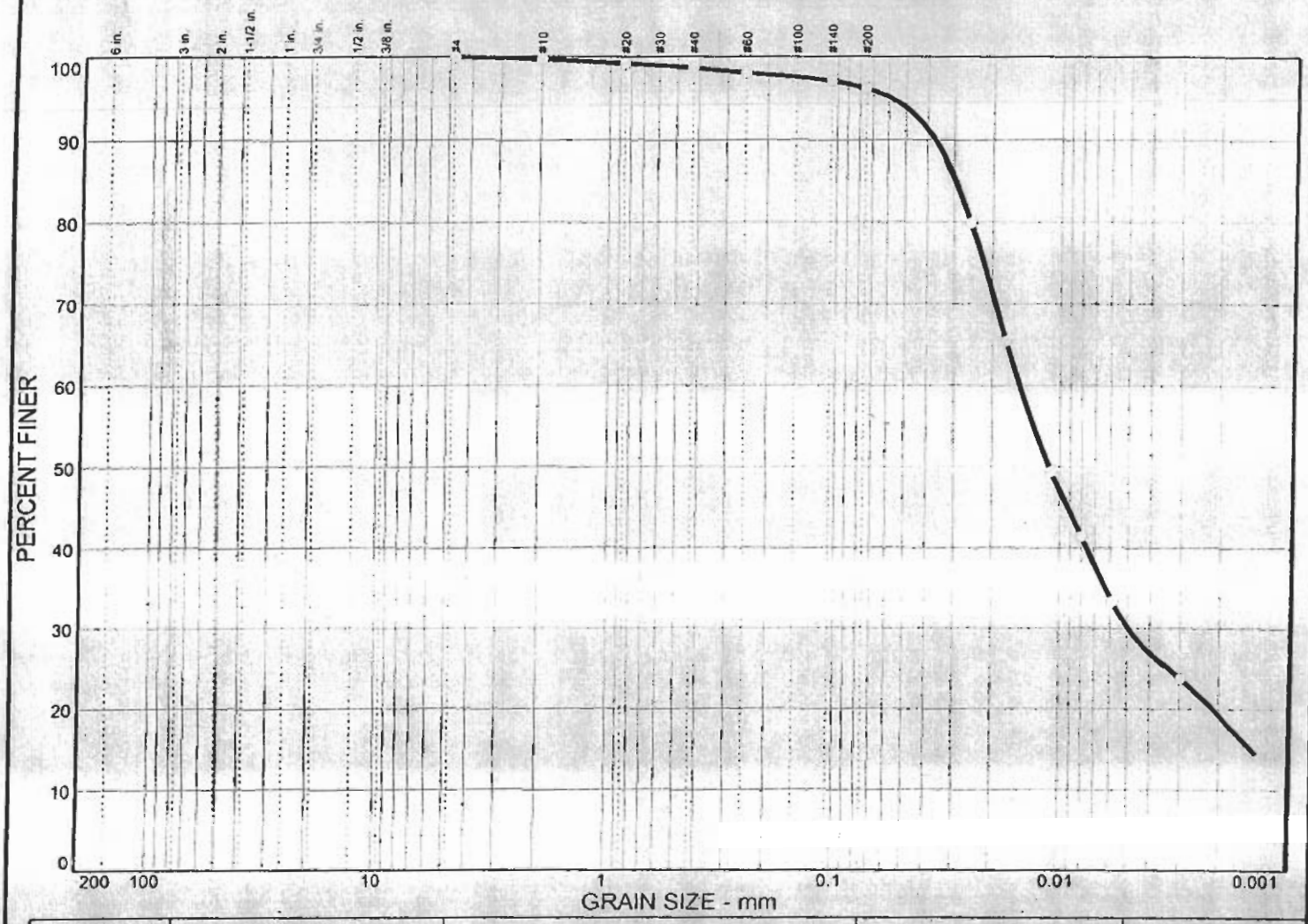
USCS Class: Determined without liquid limit

Particle Size Distribution Report

EBA Engineering, Inc.

Plate

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	3.8	66.0	30.2

LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
---	---	0.0295	0.0151	0.0111	0.0049	0.0014			

MATERIAL DESCRIPTION	USCS	AASHTO
Drak gray organic silt,trace sand	OH	---

Project No. 3115Z0239 **Client:** EA Engineering,Science,and Technologe,Inc.

Project: MPA Masonville Sediment Sample Testing

Source: EB/ELUO5A **Elev./Depth:** ---

Remarks:

Tested by: RP

Checked by: GG

Moisture Content: 145.7%

USDA Class: Silt loam

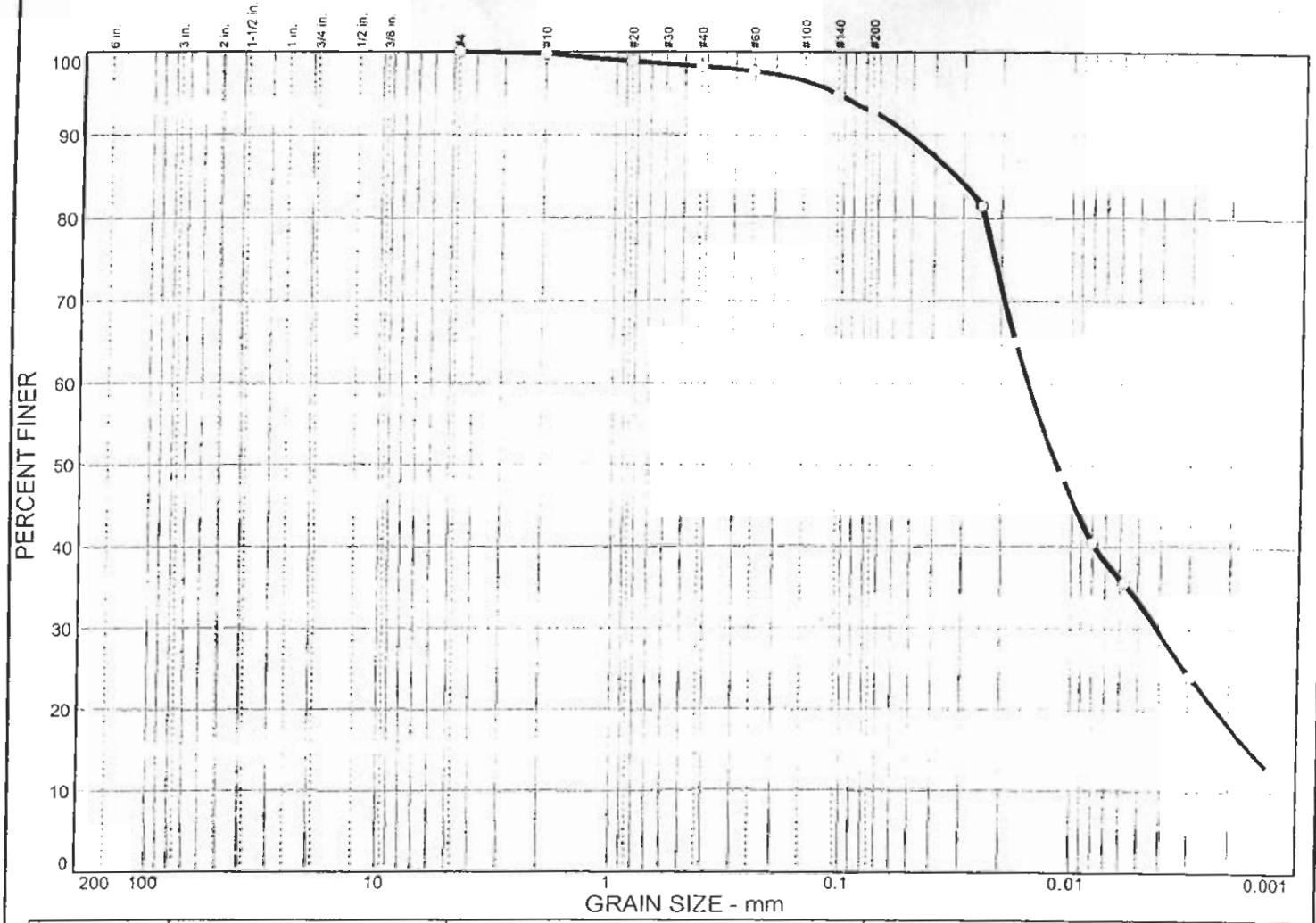
USCS Class: Determined without liquid limit

Particle Size Distribution Report

EBA Engineering, Inc.

Plate

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	7.1	59.5	33.4

LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
---	---	0.0324	0.0152	0.0114	0.0041	0.0016			

MATERIAL DESCRIPTION	USCS	AASHTO
Dark gray organic silt,trace sand	OH	---

Project No. 3115Z0239 **Client:** EA Engineering,Science,and Technologe,Inc.

Project: MPA Masonville Sediment Sample Testing

Source: EB/ELUO6 **Elev./Depth:** ---

Remarks:

Tested by: RP

Checked by: GG

Moisture Content: 117.5%

USDA Class: Silt loam

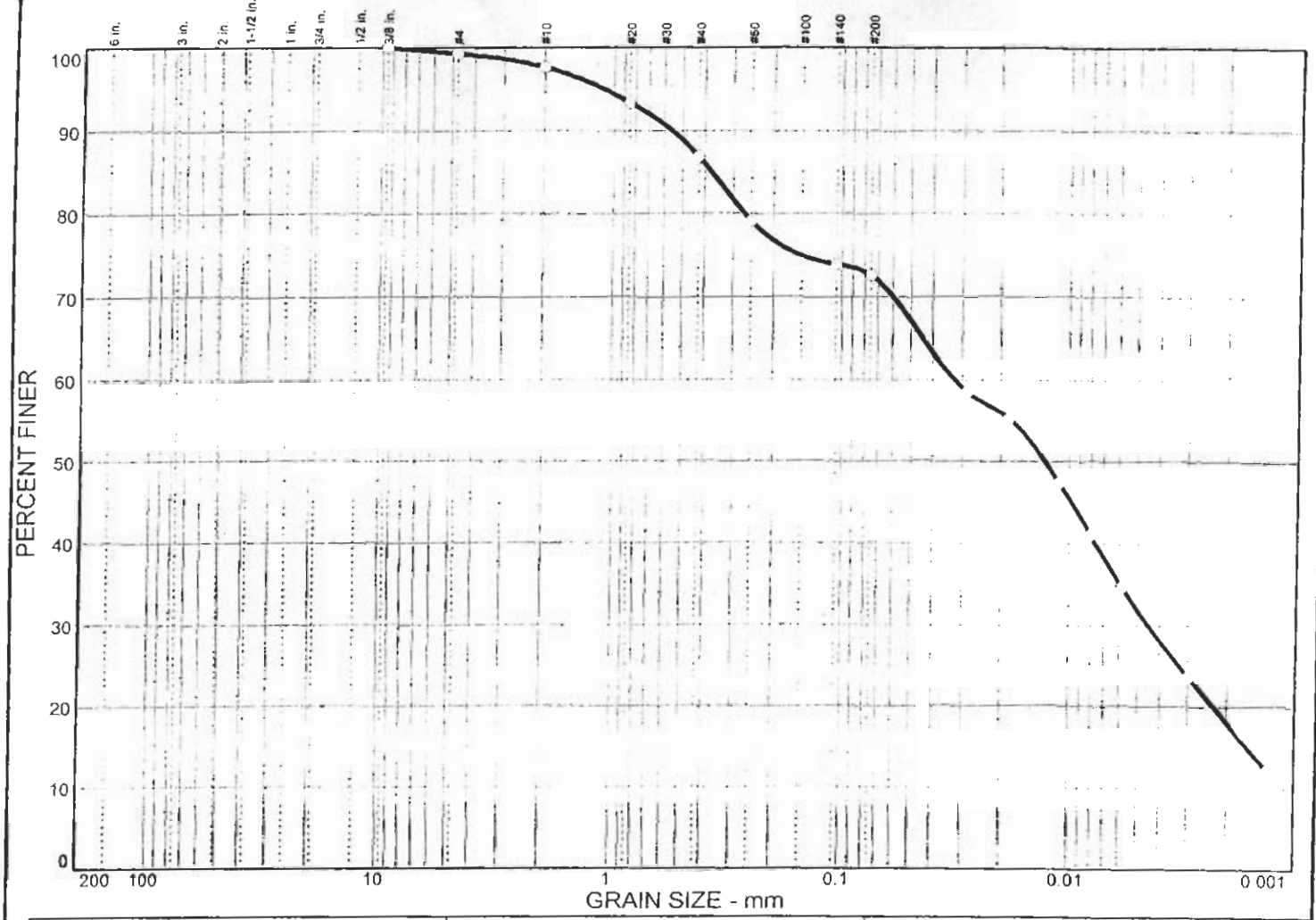
USCS Class: Determined without liquid limit

Particle Size Distribution Report

EBA Engineering, Inc.

Plate

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.7	26.7	40.7	31.9

LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
---	---	0.373	0.0324	0.0127	0.0045	0.0016			

MATERIAL DESCRIPTION	USCS	AASHTO
Dark gray organic silt with sand,trace gravel	OH	---

Project No. 3115Z0239 **Client:** EA Engineering,Science,and Technologe,Inc.

Project: MPA Masonville Sediment Sample Testing

Source: EB/ELUO8 **Elev./Depth:** ---

Remarks:

Tested by: RP

Checked by: GB

Moisture Content: 136.8%

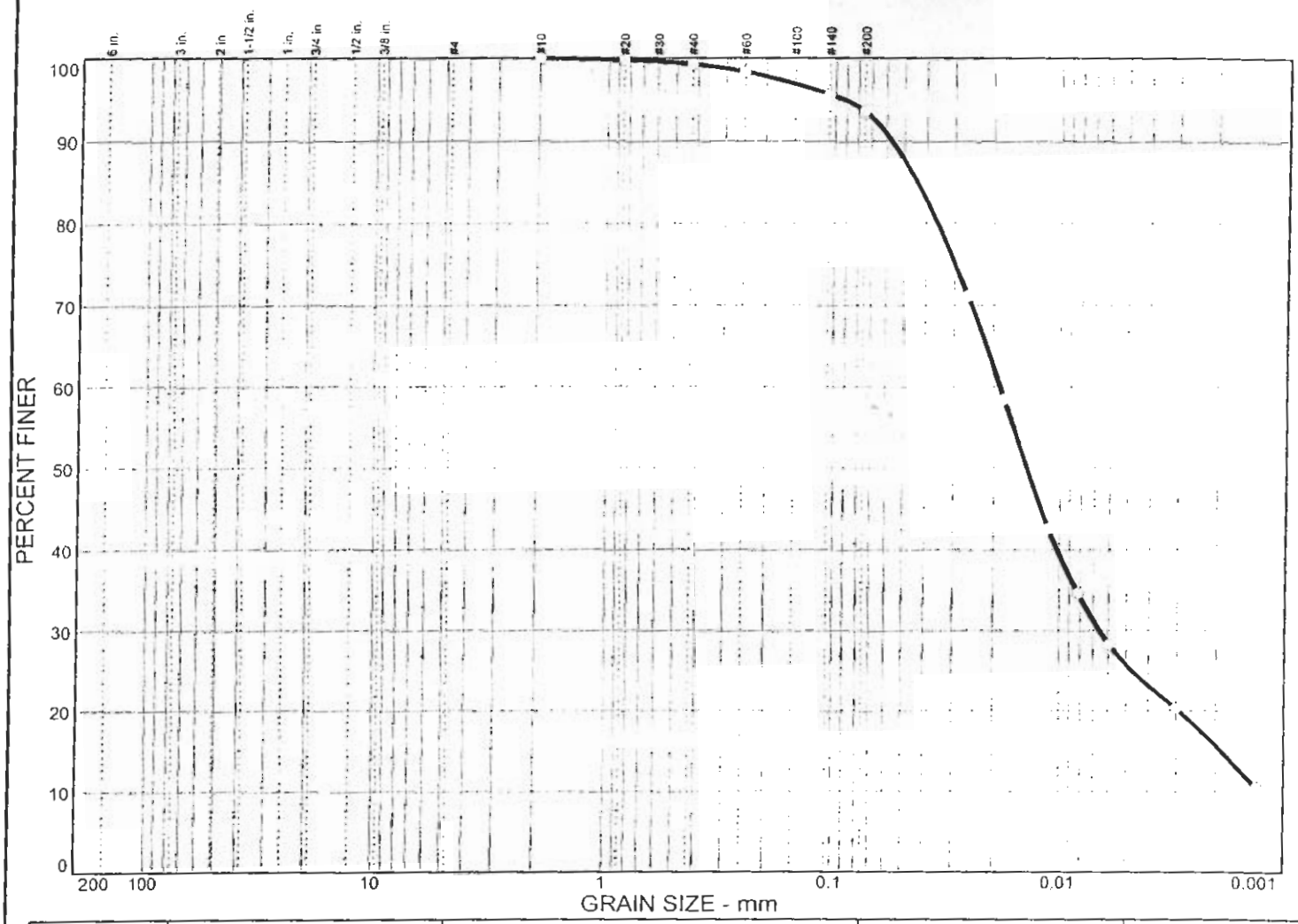
USCS Class: Determined without liquid limit

Particle Size Distribution Report

EBA Engineering, Inc.

Plate

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	6.4	67.9	25.7

LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
---	---	0.0439	0.0187	0.0141	0.0066	0.0019			

MATERIAL DESCRIPTION	USCS	AASHTO
Dark gray organic silt,trace sand	OH	---

Project No. 3115Z0239 **Client:** EA Engineering,Science,and Technologe,Inc.

Project: MPA Masonville Sediment Sample Testing

Source: EB/ELUO9 **Elev./Depth:** ---

Particle Size Distribution Report

EBA Engineering, Inc.

Remarks:

Tested by: RP

Checked by: GG

Moisture Content: 105.8%

USDA Class: Silt loam

USCS Class: Determined without liquid limit

Plate

ATTACHMENT A-3

FINAL REPORT
SEAGIRT DREDGING AREA
PROPOSED BORROW MATERIAL
SEDIMENT AND WATER
QUALITY REPORT
(APPENDICES NOT INCLUDED)

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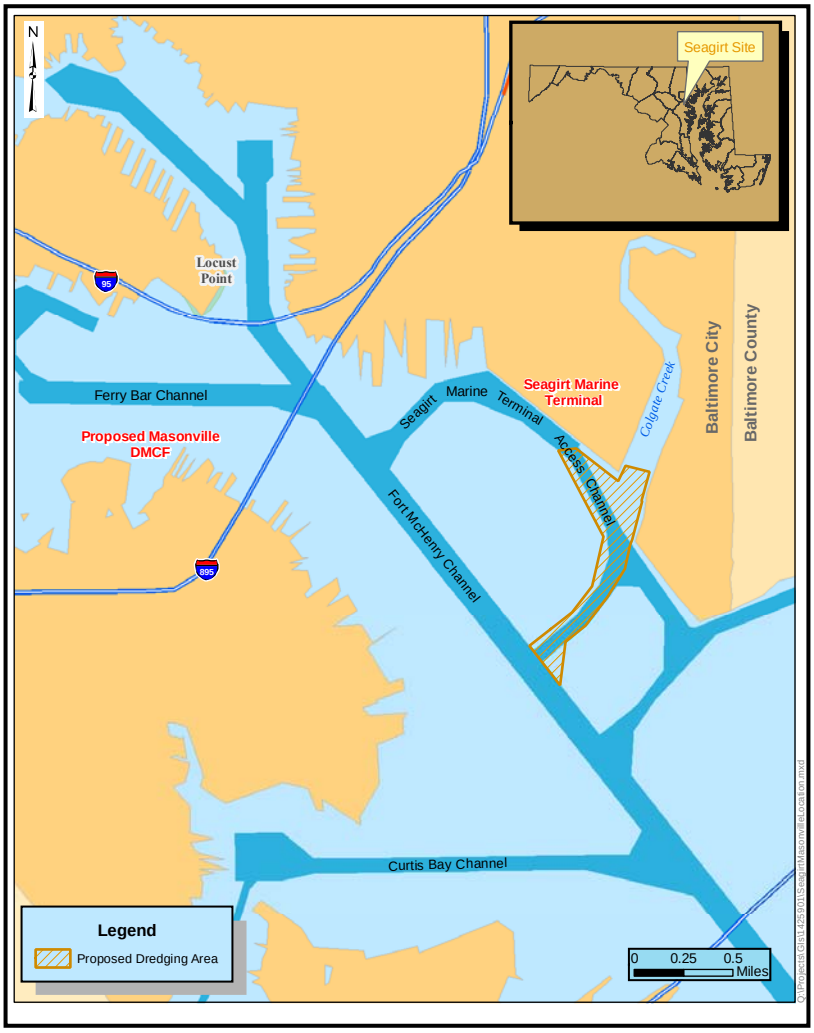
FINAL REPORT

SEAGIRT DREDGING AREA PROPOSED BORROW MATERIAL SEDIMENT AND WATER QUALITY REPORT



Prepared For:
Maryland Environmental Service
259 Najoles Road
Millersville, MD 21108

Prepared By:
EA Engineering, Science, and Technology, Inc.
15 Loveton Circle
Sparks, MD 21152

January 2007

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ACRONYMS AND ABBREVIATIONS LIST

°C	degrees Celsius
AVS	Acid Volatile Sulfides
CAB	Cellulose Acetate Butyrate
CFR	Code of Federal Regulations
COC	Chain of Custody
COMAR	Code of Maryland Regulations
COPC	Constituents of Potential Concern
CVAA	Cold Vapor Atomic Absorption
cy	cubic yard
DGPS	Differential Global Positioning System
DL	Detection Limit
DMCF	Dredged Material Containment Facility
E2CR	Environmental, Consultation, Construction, and Remediation, Inc
EA	EA Engineering, Science, and Technology, Inc.
EDL	Estimated Detection Limit
EIS	Environmental Impact Statement
EMPC	Estimated Maximum Possible Concentration
EPA	Environmental Protection Agency
ERL	Effects Range Low
ERM	Effects Range Median
GBA	Gahagan and Bryant Associates, Inc.
GPS	Global Positioning System
HMI	Hart-Miller Island
ICP	Inductively Coupled Plasma
ICP/MS	Inductively Coupled Plasma/Mass Spectrometry
ID	Identification
ITEF	International Toxicity Equivalent Factors
ITM	Inland Testing Manual
LCS	Laboratory Control Sample
mcy	million cubic yards
MDL	Method Detection Limit
MDOT	Maryland Department of Transportation
mg/L	milligrams per liter
MLLW	Mean Lower Low Water
MPA	Maryland Port Administration

MS/MSD	Matrix Spike/Matrix Spike Duplicate
ND	non-detect
NOAA	National Oceanic and Atmospheric Administration
PAH	Polynuclear Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PEL	Probable Effects Level
ppt	parts per thousand
QA/QC	Quality Assurance/Quality Control
RL	Reporting Limit
TDL	Target Detection Limits
TEF	Toxicity Equivalent Factors
TEL	Threshold Effects Level
TEQ	Toxicity Equivalency Quotient
TOC	Total Organic Carbon
SEM	Simultaneously Extracted Metals
SET	Standard Elutriate Test
SIM	Selective Ion Monitoring
SOP	Standard Operating Procedure
SQG	Sediment Quality Guidelines
STL	Severn Trent Laboratories, Inc.
SVOC	Semivolatile Organic Compound
USEPA	U.S. Environmental Protection Agency
USACE	U.S. Army Corps of Engineers
VOC	Volatile Organic Compound
WES	Waterways Experiment Station
WHO	World Health Organization

GLOSSARY

Acute: An effect having a sudden onset and lasting a short time.

Acute Water Quality Criterion: A water quality criterion which represents the highest in-water concentration of a chemical or effluent to which organisms can be exposed for a brief period of time without causing an acute effect.

Analyte: A single chemical constituent.

Borrow Material: Material (e.g., sand, soil, etc.) taken for use in another location.

Chain of Custody: Documentation that describes the date and time of collection for each environmental sample (sediment, water, or tissue), and the date and time of transfer of each environmental sample to the analytical or ecotoxicological laboratory.

Chronic: An effect involving a stimulus that is lingering or which continues for a long time.

Chronic Water Quality Criterion: A water quality criterion which represents the highest in-water concentration of a chemical or effluent to which organisms can be exposed indefinitely without causing unacceptable effects.

Clay: A fine-grained, plastic sediment with a typical grain size less than 0.004 mm, which possesses electromagnetic properties which bind the grains together to give a bulk strength or cohesion.

Congener: A member of a family of chemical compounds sharing similar structure and characteristics.

Contaminant: A chemical or biological substance in a form that harms and that can be incorporated into, onto, or be ingested by aquatic organisms, consumers of aquatic organisms, or users of the aquatic environment.

Core sample: Rock, sediment, or soil that is extracted by drilling.

Depth: The vertical distance from a specified tidal datum to the sea floor.

Differential: Producing effects by reason of quantitative differences.

Dike: An embankment constructed (typically using soil and rock) to contain dredged material or to serve as a protective barrier.

Dioxin: A family of carcinogenic hydrocarbons.

Dissolved Oxygen: Microscopic bubbles of oxygen that are mixed in the water and occur between water molecules. Dissolved oxygen is necessary for healthy lakes, rivers, and estuaries. Most aquatic plants and animals need oxygen to survive. Fish will drown in water when the dissolved oxygen levels get too low. The absence of dissolved oxygen in water is a sign of possible pollution.

Dredged Material: Material that is excavated or dredged from waters of the United States.

Dredging: Excavation or displacement of the bottom or shoreline of a water body with mechanical or hydraulic machines. Dredging is conducted to maintain channel depths or berths for navigational purposes, for shellfish harvesting, for cleanup of polluted sediments, and as a source for placement of sand on beaches.

Environmental Impact Statement (EIS): Required by NEPA for actions that could result in significant environmental impacts or for projects that are not eligible for an Environmental Assessment and Finding of No Significant Impact (FONSI). EIS results are presented in a Record of Decision from the District Commander, U.S. Army Corps of Engineers (USACE).

Evaluation: The process of judging data in order to reach a decision.

Grab Sampling: The collection of surficial sediments (the top 4-8 inches) using a sampling device with a jaw that grabs a bite of sediment.

In-situ: Latin term meaning 'in place', especially in natural or original position. In research, this typically refers to data collection or analysis that occurs at the location where sampling occurs, in contrast to measurements conducted in a laboratory.

Mean Lower Low Water (MLLW): The average height of the lower low waters over a 19-year period. For shorter periods of observations, corrections are applied to eliminate known variations and reduce the results to the equivalent of a mean 19-year value.

Mean Sea Level: The average tidal height of the surface of the sea for all stages of the tide over a 19-year period, usually determined from hourly height readings. Not necessarily equal to Mean Tide Level.

Nitrate: Salt or ester of nitric acid (NO^{3-}). It is an essential nutrient for phytoplankton growth. Low surface water concentrations typically limit phytoplankton productivity.

Nitrite: Salt or ester of nitrous acid (NO^{2-}).

Non-detect (ND): A chemical constituent that is not detected or measured above the method detection limit in an analytical test.

Open Water Placement: Placement of dredged material in rivers, lakes, or estuaries via pipeline or release from hopper dredges or barges.

Organophosphorus Pesticide: Any pesticide that contains carbon-phosphorus bonds. These pesticides were developed as more selective and less persistent alternatives to organochlorine pesticides, such as DDT.

Overburden: Material not geotechnically suitable for use as foundation or borrow material in construction which often overlies material which is geotechnically suitable for either foundation or borrow material.

pH: A measure of acidity or alkalinity on a scale of 0 (acidic) to 14 (basic), with 7 being neutral.

Phosphate: The anion (PO_4-) or a salt of phosphoric acid. Phosphate is essential to the metabolism of living organisms because inorganic phosphate is required for the synthesis of ATP. Plants and microorganisms take up phosphorus, mainly in the form of phosphates. Various phosphates are used as fertilizers. Excess phosphate washed into streams and lakes contributes to eutrophication and formation of algal blooms.

Polynuclear Aromatic Hydrocarbons (PAH): A group of over 100 different chemicals that are formed during the incomplete burning of coal, oil and gas, garbage, or other organic substances like tobacco or charbroiled meat. Some PAHs are manufactured. These pure PAHs usually exist as colorless, white, or pale yellow-green solids.

Polychlorinated Biphenyl (PCB): A large group of toxic synthetic lipid-soluble chlorinated hydrocarbons that are used in various industrial processes and that have become persistent environmental contaminants that can be concentrated in food chains.

Probable Effects Level (PEL): An estimate of the concentration of a potentially toxic substance in the sediment above which the substance is likely to cause adverse effects to aquatic organisms**.**

Quality Assurance (QA): The total integrated program for assuring the reliability of data. A system for integrating the quality planning, quality control, quality assessment, and quality improvement efforts to meet user requirements and defined standards of quality with a stated level of confidence.

Quality Control (QC): The overall system of technical activities for obtaining prescribed standards of performance in the monitoring and measurement process to meet user requirements.

Region: U.S. Environmental Protection Agency administrative area.

Regulations: Administrative rules published in the Code of Federal Regulations (CFR) or Code of Maryland Regulations (COMAR).

Sediment: Particulate organic and inorganic matter that settles and accumulates in a loose form on the bottom of a body of water or waterway. It may be chemically precipitated from solution, secreted by organisms, or transported from land by air, ice, or water, and deposited. Inorganic

sediments on the bottom of the Bay include cobble, gravel, sand, silt, and clay. These materials are classified by grain-size.

Sediment Quality Guidelines (SQG): Concentrations of chemical constituents in sediments that are used in order to differentiate sediments of little concern from those predicted to have adverse biological effects.

Shoreline: The intersection of a specified plane of water with the shore or beach (typically taken as mean high water or mean higher high water).

Silt: Sediment particles with a grain size between 0.004 mm and 0.062 mm, i.e. coarser than clay particles but finer than sand.

Standard Operating Procedure (SOP): A written document which details an operation, analysis, or action whose mechanisms are thoroughly prescribed and which is commonly accepted as the method for performing certain routine or repetitive tasks.

Threshold Effects Level (TEL): Concentrations below which a contaminant will rarely induce adverse biological effects.

Total Organic Carbon (TOC): The sum of all organic carbon compounds in water or a sediment.

Tributyltin: Compounds that belong to a group known as the organotins. Tributyltins are manufactured compounds that have no counterparts in nature, and can be toxic.

Turbidity: Cloudiness in the water column created by suspended particles, algae, or other materials. High turbidity reduces the amount of light that penetrates into the water column and, therefore, high turbidity can be harmful to aquatic life.

Volatile Organic Compound (VOC): An organic compound that evaporates readily at atmospheric temperatures.

Water Quality Criterion: A constituent concentration or narrative statement representing a quality of water that supports a particular use. When criteria are met, water quality will generally protect the designated area. See **acute water quality criterion**, **chronic water quality criterion**.

1. INTRODUCTION

Maintenance and new work dredging projects in the Baltimore Harbor navigation channels generate approximately 1.5 million cubic yards (mcy) of dredged material on an annual basis. Surficial sediment dredged from the Patapsco River west of the North Point-Rock Point line (Figure 1-1) is statutorily prohibited, by the State of Maryland, from being re-deposited in an unconfined manner into or onto any portion of the Chesapeake Bay waters or its tributaries. Currently, the most feasible option for the management of dredged material from the Baltimore Harbor is placement in a dredged material containment facility (DMCF). Existing placement sites for dredged material from Baltimore Harbor (Patapsco River west of North Point-Rock Point line) include the Hart-Miller Island (HMI) dredged material containment facility (DMCF) and the Cox Creek DMCF (Figure 1-1). With only two existing placement sites, a dredged material placement capacity shortfall may begin in Maryland as early as State Fiscal Year (SFY) 2007, resulting in an urgent need to study, select, and implement new options capable of accepting the projected volumes of material dredged from within the Baltimore Harbor.

As part of the studies conducted to support the Environmental Impact Statement (EIS) and the permitting process for construction of a new DMCF at the Masonville site (Figure 1-1), it was determined that the site lacked the sufficient sand volume needed for construction of the containment dikes. Although some stiff clays were available on-site that could make up the needed dike construction volume, the materials are harder to use. A potential offsite sand borrow location at the Seagirt Marine Terminal was identified and the potential dredged material was tested to determine the material's suitability for use in dike construction and to evaluate any potential impacts to the surrounding area from excavation and construction.

This study presents the results of the testing and analysis of potential sand/gravel borrow material from the Seagirt Marine Terminal. The Seagirt Marine Terminal dredging area is part of the Seagirt Marine Terminal Access Channel Widening and Deepening Project (Figure 1-1), which is planned to widen the existing channel turning basin and deepen the existing access channel (Dundalk West Channel) from –42 ft mean lower low water (MLLW) to -50 ft MLLW. The project is already permitted to remove materials to -50 ft MLLW plus up to 2 feet of allowable overdredging (due to the inaccuracy of mechanical dredging methods). Previous studies conducted as part of the pre-dredging analysis for the Seagirt Marine Terminal Access Channel Widening and Deepening Project indicated the presence of a deep sand/gravel layer that has low chemical constituent concentrations (E2CR 2006, EA 2006). This deep sand/gravel layer (down to -56 feet MLLW) was targeted for additional evaluation to assess the feasibility of for its use in containment dike construction. Current proposals for the Masonville DMCF include the potential use of sand/gravel from Seagirt down to either -51 or -52 ft MLLW (plus up to 2 ft of overdredging).

This report presents the results of the sampling and analysis of potential borrow material, site water, and effluent elutriates from Seagirt Marine Terminal. The objective of the project was to test the quality of proposed borrow materials to demonstrate the suitability of the materials for dike construction (in-water placement) and to analyze the potential for constituents in the borrow material to be released during dike construction at the proposed Masonville DMCF. Results were compared to appropriate sediment quality guidelines and water quality criteria.

1.1 PROJECT LOCATION

The existing Masonville Marine Terminal property is located within Baltimore Harbor, northwest of the Baltimore Harbor Tunnel toll plaza (I-895) in the southern part of Baltimore City (Figure 1-1). Masonville is bordered by the Patapsco River and Ferry Bar Channel to the north, an industrial site to the south, and approximately 55 acres of protected habitat area in Masonville Cove to the west and southwest. The shoreline area adjacent to the proposed alignment is currently owned by the Maryland Department of Transportation (MDOT) and managed by the Maryland Port Administration (MPA). The site lies completely within the limits of Baltimore City. The proposed Masonville DMCF would have a 141-acre footprint and a dredged material capacity of approximately 10 million cubic yards (mcy), and is planned to accept approximately 0.5 mcy of dredged material annually for 20 years.

Seagirt Marine Terminal is located on the north shore of the middle branch of the Patapsco River, east of I-95 and I-895 within the Baltimore City limits (Figure 1-1). Seagirt Marine Terminal is bordered by the CNX Marine Terminal to the west, the Patapsco River to the south, Colgate Creek and Dundalk Marine Terminal to the east, and the CSX Intermodal Container Transfer Facility and Point Breeze Business Center to the north. The Seagirt Marine Terminal access channels are located south of Seagirt Marine Terminal, adjacent to Dundalk Marine Terminal. The Seagirt dredging project will deepen and widen the access channels, over an area of approximately 128 acres of tidal open water (Figure 1-1).

1.2 PROJECT BACKGROUND AND SCOPE

Studies conducted as part of the pre-dredging analysis for the Seagirt Marine Terminal Access Channel Widening and Deepening Project indicated the presence of a deep sand/gravel layer that has low chemical constituent concentrations (E2CR 2006, EA 2006c). A preliminary investigation was conducted in 2004 to characterize the surface and sub-surface sediment that would be dredged as part of the Seagirt Widening and Deepening project (EA 2006c). In the preliminary study, sediment from a total of three locations was sampled and tested at depth intervals of 5 and 10 ft, to the proposed project depth of -50 ft MLLW (plus 2 feet of overdredging, -52 ft MLLW total depth). Additional sediment sampling was conducted in 2005 to further characterize the physical and chemical sediment quality and to identify potential sand/gravel sources at depth (EA 2006c). The supplemental study, conducted in 2005, included environmental sampling of 13 locations to the proposed project depth of -52 ft MLLW and geotechnical borings to delineate the extent of the sand/gravel layer.

Sediment chemistry testing, conducted on sediment samples from the Seagirt Marine Terminal Access Channel, determined that the proposed dredged material from depths greater than 15 feet below the sediment surface was comparable in quality to dredged material from the Upper Chesapeake Bay approach channels to the Port of Baltimore. Therefore, this material would potentially be suitable for use as capping material at the Hart-Miller Island (HMI) DMCF (EA 2006c). The geotechnical borings, collected to depths between -65 ft MLLW and -100 ft MLLW, indicated the presence of approximately 1.05 mcy of sand/gravel within the proposed dredging area (EA 2006c).

In April 2006, 31 additional geotechnical borings were taken as part of the pre-dredging analysis (Figure 1-2) (E2CR 2006). Results from these borings indicated that some portions of the Seagirt dredging area contain sand and gravel suitable as a construction material. When the studies for the Masonville DMCF EIS indicated that the site lacked a sufficient on-site sand source to construct the containment dikes (without using a substantial amount of stiff clays), it was proposed that the materials that were already permitted to be dredged from the Seagirt area be considered as a dike-building source. Additional chemical and physical suitability data needed to be collected to consider the Seagirt sand/gravel for in-water placement and dike construction. The initial boring profile generated in April 2006 indicated that there is approximately 0.5 to 0.8 mcy of sand/gravel suitable for construction of the Masonville DMCF containment dikes underneath a layer of unsuitable construction material (Figure 1-3). This sand and gravel volume estimate was based on the proposed project dredging depth of -52 feet MLLW, plus up to two feet of overdredging, for the Seagirt Marine Terminal project.

1.3 PROJECT OBJECTIVES

The objective of the current study was to determine whether or not the sand/gravel within the dredging area is suitable for in-water placement and containment dike construction, and to assess the potential for contaminants to become mobilized during dike construction. The specific goals of this work were to:

- Collect sediment cores from 10 locations, which were composited into five samples for physical and chemical analysis;
- Collect sediment borings from 10 locations to determine the lateral and vertical extent of the deep sand/gravel layer;
- Collect site water and elutriate preparation water to prepare standard elutriates to evaluate the potential for release of chemical constituents during dredging and containment dike construction;
- Compare the bulk sediment results to sediment quality guidelines (SQGs) to determine suitability for in-water placement and delineate elevation of material suitable for construction activities; and
- Compare the site water and standard elutriate results to U.S. Environmental Protection Agency (USEPA) and State of Maryland acute and chronic water quality criteria for the protection of aquatic life.

1.4 EXPERIMENTAL DESIGN

The analytical components of the Seagirt sand/gravel characterization (target analytes, target detection limits, methodologies, elutriate preparation procedures, and sample holding times) followed guidance described in the following documents:

- USEPA/USACE, 1998 (EPA-823-B-98-004). *Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S.-Testing Manual (Inland Testing Manual).*

- USEPA/USACE, 1991. *Evaluation of Dredged Material Proposal for Ocean Disposal, Testing Manual* (commonly called "The Green Book").

- USEPA/USACE, 1995 (EPA-823-B-95-001). *QA/QC Guidance for Sampling and Analysis of Sediments, Water, and Tissues for Dredged Material Evaluations*.

- USEPA, 2001 (EPA-823-B-01-002). *Methods for Collection, Storage, and Manipulation of Sediments for Chemical and Toxicological Analyses: Technical Manual.*

The testing program included the following tasks:

- Physical analyses of bulk sediment composites (multiple cores from each location) from the channels (grain size, specific gravity, Atterberg limits, and total solids determination); and

- Chemical analysis of bulk sediment, site water, and standard elutriates for the following project-specific target analytes: metals, chlorinated pesticides, polynuclear aromatic hydrocarbons (PAHs), polychlorinated biphenyl (PCBs) congeners, semivolatile organic compounds (SVOCs), butyltins (sediment only), dioxin and furan congeners (sediment only), ammonia, cyanide, total sulfides, acid volatile sulfides (AVS) (sediment only), simultaneously extracted metals (SEM) (sediment only), total Kjeldahl nitrogen (TKN), total organic carbon (TOC), total phosphorus, nitrate, and nitrite.

This data report contains a comprehensive summary of field activities and the results of bulk sediment, site water, and standard elutriate testing for the Seagirt sand/gravel characterization. An overview of the field sampling program is provided in Chapter 2. Chapter 3 presents the analytical methods used in the sediment, site water, and standard elutriate analyses. Chapter 4 presents the results of the analytical testing program. A comparison of the Seagirt sample results to the Masonville borrow material can be found in Chapter 5. References cited in this report are provided in Chapter 6.

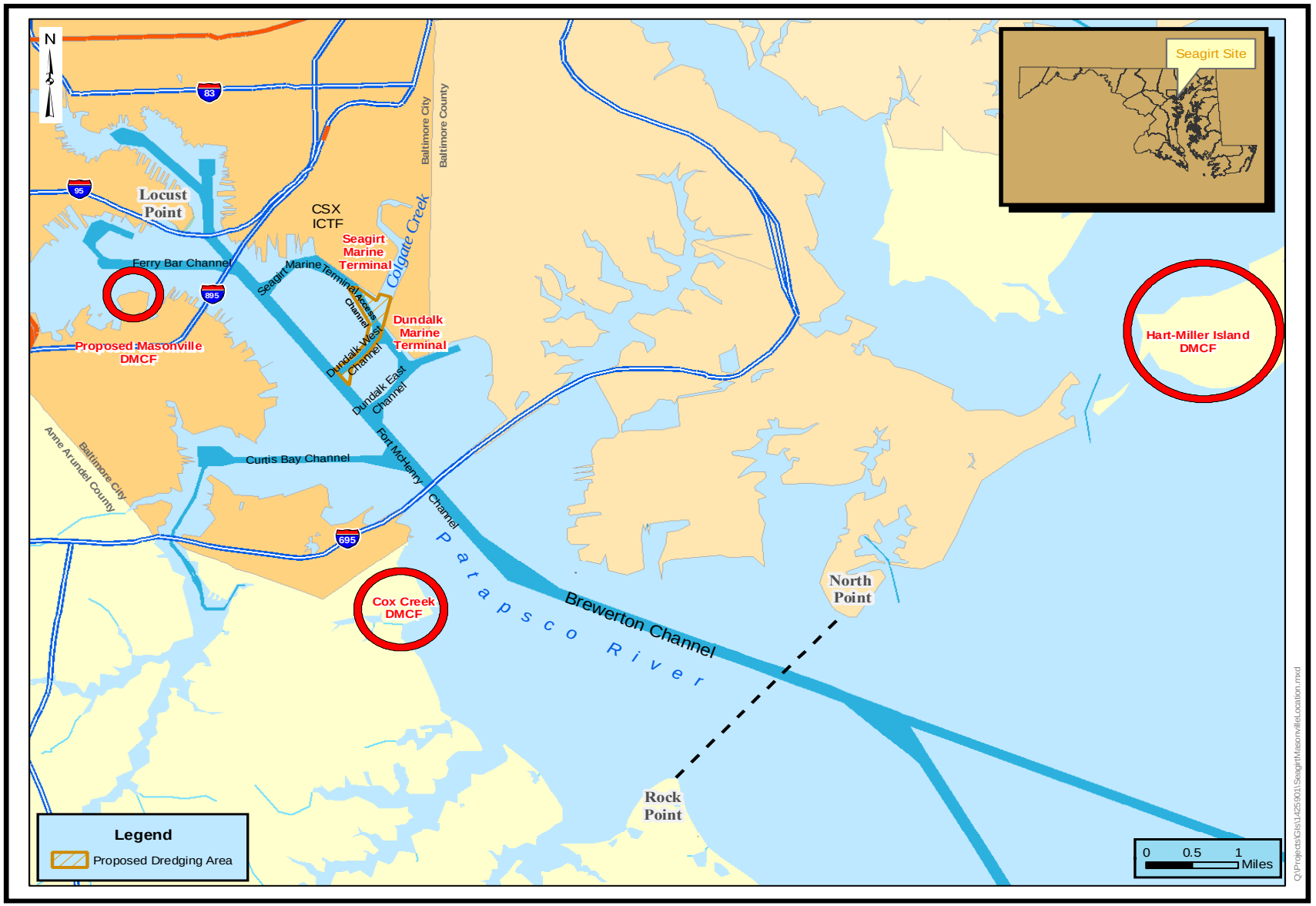
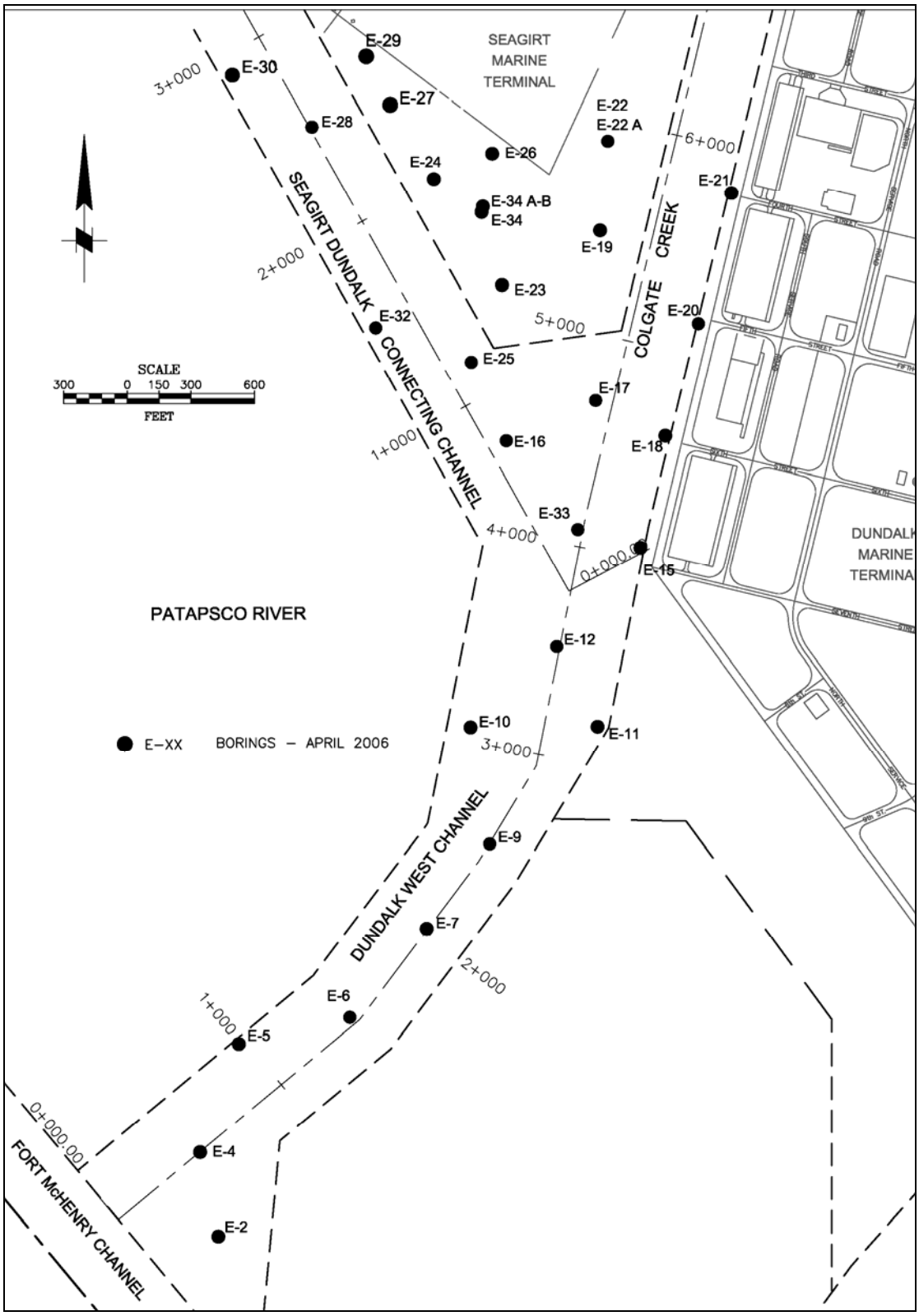


Figure 1-1. Location of the Proposed Masonville DMCF and Seagirt Dredging Area



Note: Locations E-1, E-3, E-8, E-13, E-14, E-31 were not included in this figure because they are located outside the dredging area.

Figure 1-2. Location of Borings Completed in April 2006

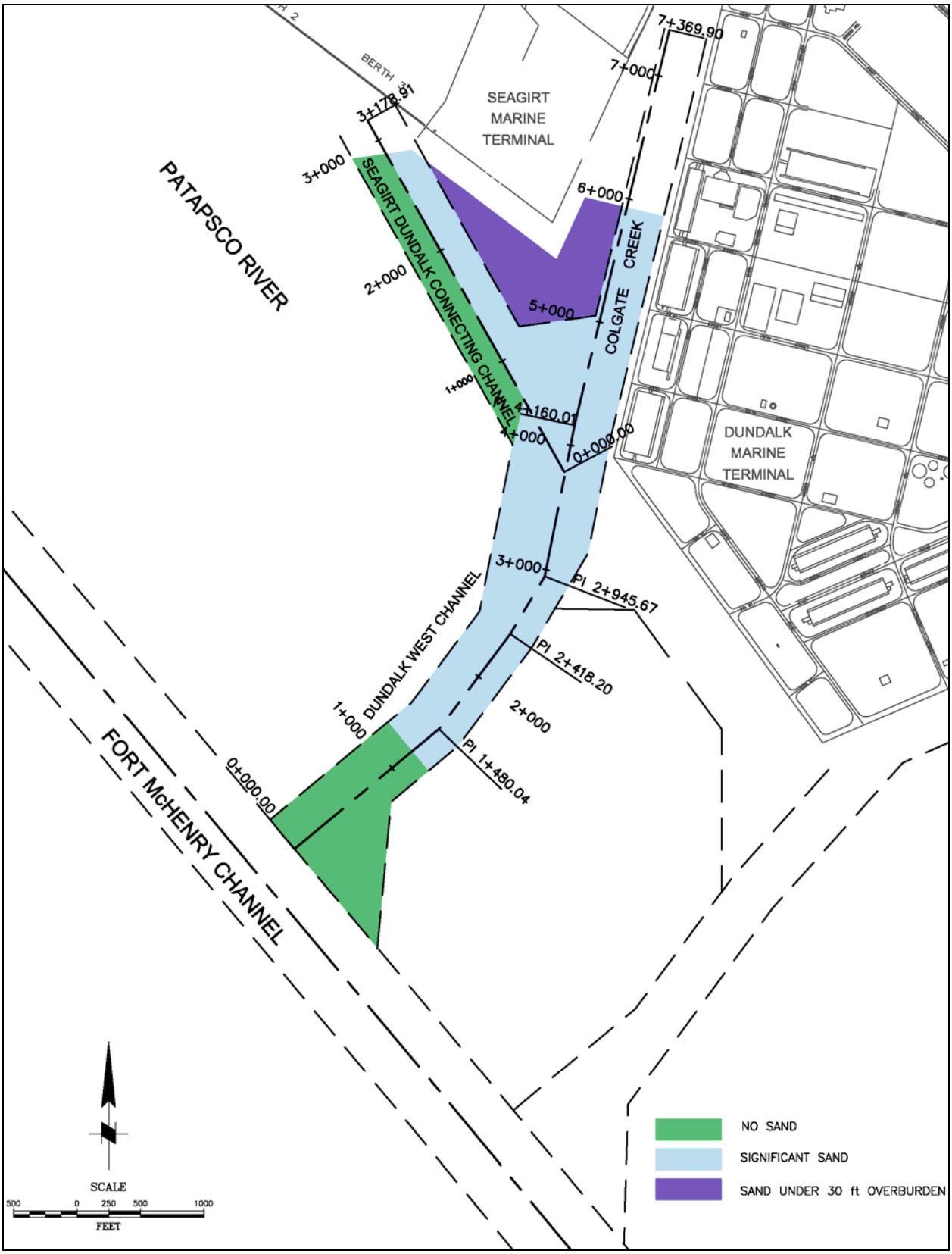


Figure 1-3. Sand Sources Identified in the Seagirt Dredging Area

2. SAMPLING PROCEDURES

To determine the suitability of the material from the Seagirt Access Channel Deepening and Widening project proposed for use during construction of the proposed Masonville DMCF, subsurface samples from a total of 10 locations were collected and analyzed (Figure 2-1). Drilling was completed to a target depth of -56 feet MLLW. The top of the sampling interval (the interface between silt and the potential borrow material) was determined by referring to previous boring logs. Sampling was initiated on 5 June 2006 and was completed on 16 June 2006. The site water sample was collected on 19 June 2006. Sediment and water samples were submitted to Severn Trent Laboratories, Inc. (STL)-Pittsburgh on 19 and 20 June 2006

2.1 *IN SITU* WATER QUALITY

Temperature, dissolved oxygen (DO), salinity, pH, and turbidity were measured each day during sampling operations. Water quality data is presented in Table 2-1. Water quality was measured approximately 1 foot below the water surface using a YSI650 multi-meter instrument.

2.2 SITE WATER AND ELUTRIATE WATER

Site water and elutriate preparation water were collected on 19 June 2006 from the approximate location of Station 10**.** Approximately 38 gallons of site water and 36 gallons of elutriate preparation water were collected. Water was collected from mid-depth of the water column using ISCO pumps with dedicated Tygon tubing. Site water for analytical testing was stored in certified cleaned laboratory-prepared containers with appropriate preservatives. Sample containers, preservation techniques, and holding requirements for sediment samples for chemical analyses are provided in Table 2-2. The elutriate preparation water was placed in 1-gallon certified cleaned, amber glass bottles and stored in a 4° Celsius refrigeration unit at EA's office in Sparks, MD. Both the elutriate preparation water and the site water were delivered with sediment samples to STL-Pittsburgh.

Because of questions related to the results for the site water sample collected in June, a second site water sample was collected on 30 August 2006 using the same methodology (see Section 4.2 for information on the results). Approximately 20 gallons of site water were collected for additional chemical analysis and elutriate preparation.

2.3 SEDIMENT SAMPLING

Sampling to characterize the suitability of potential borrow material was completed using a 3-inch split-spoon sampler provided by Environmental, Consultation, Construction, and Remediation, Inc. (E2CR). Drilling activities were completed aboard an 80-foot spud barge provided by Smith Brothers boat yard of Baltimore, Maryland. Smith Brothers also provided tug boats to move the barge and position it at each of the 10 sampling locations. Multiple sample cores were collected from each boring location and were identified in the boring logs as boring numbers 1A, 1B, 1C, 2A, 2B, 2C, 2D, 2E, 3A, 3B, 3C, 4A, 4B, 5A, 5B, 6A, 7A, 7B, 7C, 7D, 7E, 8A, 8B, 8C, 9A, 9B, 10A, 10B (Appendix B).

Locations for sampling were chosen by personnel at EA Engineering, Science, and Technology, Inc (EA) and Gahagan and Bryant Associates, Inc. (GBA) based on the geotechnical borings that had been completed. Samples were located in areas where borings indicated that there may be sand and gravel available for use. Sampling locations were determined in the field using a Trimble ProXR differential global positioning system (DGPS). The ProXR uses the United States Coast Guard Differential Beacon System to augment the GPS satellite data and obtain differential accuracy of 1 to 3 meters. EA personnel used a small work boat to position a marker buoy at each location, which was used to position a barge/drilling rig to ensure sample location accuracy.

Sediment samples were obtained by loading the split-spoon sampler with 2.375-inch inner-diameter Cellulose Acetate Butyrate (CAB) plastic liner (to retain sediment samples for processing at a later date). Four-inch inner diameter augers were drilled into the sediment by E2CR personnel to the desired sample depths. The split-spoon sampler was lowered to the bottom of the augers and brought back onto deck. The CAB liner was removed, capped, taped, and labeled with location ID, date, time, and length of sample recovery. Actual drilling location coordinates were recorded in a field log book (Appendix A). Tables 2-3 through 2-12 list a summary of sampling coordinates and sample information at each location. A geologist, provided by E2CR, produced boring logs for each location, which are included in Appendix B.

Cores collected during each workday were stored in cooled, insulated containers onboard the barge or sampling platform. Cores were transferred to a refrigeration unit (cooled to 4°C) at EA's office in Sparks, Maryland at the end of each workday. Holding times for the borrow material samples began when the sediment was removed from the core liner, composited, homogenized, and placed in the appropriate sample containers. Equipment that came into direct contact with sediment during sampling was decontaminated prior to deployment in the field and between each channel reach to minimize cross-contamination; the decontamination procedure is listed in Section 2.4. The Chain of Custody (COC) forms for the collected sediment cores are included in Appendix A.

2.4 EQUIPMENT DECONTAMINATION PROCEDURES

Equipment that came into direct contact with sediment during sampling was decontaminated prior to deployment in the field and between each sample to minimize cross-contamination. This includes the sampler nose cone and catcher, and stainless steel processing equipment (spoons, knives, bowls, etc.). While performing the decontamination procedure, phthalate-free nitrile gloves were used to prevent phthalate contamination of the sampling equipment or the samples.

The decontamination procedure is described below:

- Rinse equipment using clean tap or site water
- Wash and scrub with non-phosphate detergent (Alconox or other laboratory-grade detergent)
- Rinse with tap water
- Rinse with 10 percent nitric acid (HNO_3)
- Rinse with distilled or de-ionized water

- Rinse with methanol followed by hexane
- Rinse with distilled or de-ionized water
- Air dry (in area not adjacent to the decontamination area)
- Wrap equipment in aluminum foil, shiny side out

Waste liquids were contained during decontamination procedures and transferred to EA's facility in Sparks, Maryland, for disposal.

2.5 SAMPLE PROCESSING AND COMPOSITING

To collect the required volume for analytical testing, multiple cores were collected at each sample location for each sample depth interval. Upon completion of field sampling, borrow material sediment cores were processed in a designated area at EA's warehouse facility. Prior to processing, cores were sorted and checked against the COC form. Samples submitted for testing consisted of sediments from depth-interval composites (Table 2-3 to 2-12). Depth intervals were determined based on sediment profiles from previous borings (completed by EA in 2004 and 2005 and E2CR 2006) that were used to determine the elevation of the sand/gravel layer. Sampling was done to include the material that was potentially suitable for construction.

Sediment cores were collected from the specific depth intervals at each location to meet sample volume requirements for the analytical chemistry. Sediments were extracted from each core section using a stainless steel extrusion rod into a stainless steel bucket. Then, each section was homogenized in stainless steel buckets until the sediment was thoroughly mixed and of uniform consistency. Sample processing equipment that came into direct contact with the sediment was decontaminated according to the protocols specified in Section 2.4.

Upon completion of the homogenization, samples of the sediment from each location were removed for bulk chemistry analysis, placed into pre-cleaned glass jars using stainless steel spoons, and labeled. Holding times for the sediment samples began when the sediment was removed from the core liner, homogenized, and placed in the appropriate sample containers. Sample containers, preservation techniques, and holding requirements for sediment samples for chemical analyses are provided in Table 2-2.

2.6 SAMPLE LABELING, CHAIN-OF-CUSTODY, AND DOCUMENTATION

2.6.1 Field Logbook

During sampling a field log of activities, sampling location coordinates, and water depths were recorded in a field logbook in indelible ink (Appendix A). In addition, water quality data was recorded in the field logbook. Sampling personnel names, local weather conditions, and other information that impacted the field sampling program were also recorded. During sampling, E2CR recorded boring logs for each sampling location and submitted copies to EA (Appendix B).

2.6.2 Sample Numbering System

Two separate but related sample-numbering systems were used. One applied to the cores and the other to the samples. The core numbering system was used to communicate the number of cores that were required for each sediment sample between the field crew and the sampling processing crew. The sample numbering system provided communication between the sample processing operation and the laboratories performing the desired analyses.

Sediment cores collected in the field were labeled with the location ID, depth interval, number of cores collected within the specified depth intervals, and the corresponding sediment sample ID. A summary of the sample IDs for the sediment samples is provided in Tables 2-3 to 2-12.

Sample containers for the processed sediment were labeled with the following information:

- Client name
- Project number
- Sample ID
- Date and time of collection
- Sampler's initials
- Type of analyses required

2.6.3 Chain-of-Custody Records

Samples processed at EA's warehouse facility were documented on a COC. These COCs accompanied the samples to STL–Pittsburgh for sample analyses. A copy of the COCs are found in Appendix A.

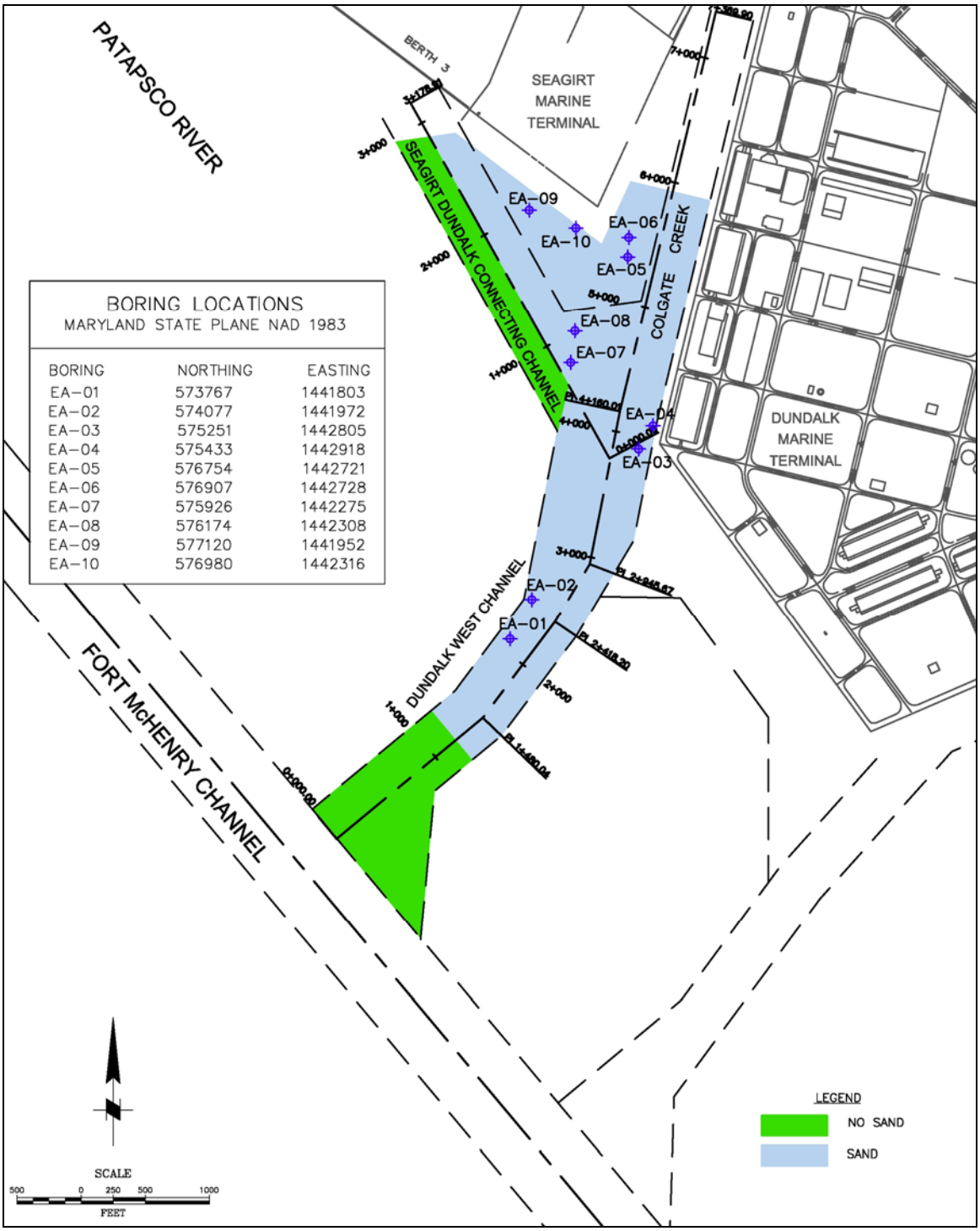


Figure 2-1. Seagirt Dredging Area Sediment Sample Locations

Table 2-1. Seagirt *In Situ* Water Quality Data

SITE	DATE & TIME SAMPLED	WATER TEMP (degrees C)	SALINITY (ppt)	DISSOLVED OXYGEN (mg/L)	pH	TURBIDITY (NTU)
EA-01	6/5/06 1157	22.74	9.48	8.82	8.12	5.100
EA-01	6/6/06 0900	22.90	11.49	9.80	8.39	5.100
EA-02	6/6/06 0940	23.02	10.70	8.70	8.40	5.400
EA-02	6/7/06 1111	23.17	10.97	10.80	8.43	4.200
EA-07	6/6/06 1340	23.19	11.40	8.47	7.97	5.200
EA-07	6/8/06 0900	22.46	12.31	13.13	8.48	4.900
EA-08	6/9/06 0907	23.26	13.20	10.40	8.70	5.500
EA-08	6/13/06 0911	21.23	15.84	10.10	8.70	10.900
EA-03	6/13/06 1228	20.50	14.30	7.31	7.24	9.000
EA-03	6/14/06 0920	22.36	11.20	9.80	8.70	6.000
EA-04	6/14/06 1128	22.50	10.90	10.20	8.70	7.100
EA-05	6/14/06 1425	22.49	10.70	10.40	8.80	5.700
EA-05	6/15/06 0930	22.10	12.70	8.80	8.60	11.100
EA-06	6/15/06 1203	22.00	12.40	9.80	8.20	7.100
EA-09	6/16/06 0805	21.60	13.70	8.80	8.50	5.900
EA-10	6/16/06 1126	22.00	12.80	8.70	8.50	6.400
SGT06-SW	6/19/06 1308	25.00	10.50	8.70	8.20	37.400

*All water quality data was collected 1 foot below the surface of the water column.

Table 2-2a. Required Containers, Preservation Techniques, and Holding Times for Sediment Samples. [(a)]

Parameter	Volume Required[(b)]	Container[(c)]	Preservative	Holding Time
Inorganics				
Metals (including Mercury)	4 oz.	P,G	4°C	6 months (28 days for Hg)
Biochemical Oxygen Demand	8 oz.	P,G	4°C	48 hours
Chemical Oxygen Demand	(d)	P,G	4°C	28 days
Cyanide	(d)	P,G	4°C	14 days
Sulfide	(d)	P,G	4°C	7 days
Acid Volatile Sulfides (AVS)	4 oz	P, G	4°C (no headspace)	14 days
Nitrogen (Ammonia, Nitrate + Nitrite)	(d)	P,G	4°C	28 days
Nitrogen (Total Kjeldahl), Total Phosphorus	4 oz	P,G	4°C	28 days
Physical Parameters				
Grain Size, Specific Gravity, Atterberg Limits	32 oz.	P,G	4°C	6 months
Moisture Content	(d).	P,G	4°C	6 months
Organics				
Total Organic Carbon	4 oz	G	4°C	14 days
Pesticides (Organochlorine and Organophosphate), Semivolatile Organics, Polynuclear Aromatic Hydrocarbons, PCB Congeners	32 oz	G	4°C	14 days until extraction, 40 days after extraction
Organotins	8 oz	G	4°C	14 days until extraction, 40 days after extraction
Polychlorinated Dioxins/Furans	4 oz.	G	4°C	1 year until extraction, 40 days after extraction

(a) From time of sample collection
(b) Additional volume was provided for samples designated as MS/MSDs.
(c) P = plastic; G = glass.
(d) Sufficient volume provided from the 8 oz. noted under Biochemical Oxygen Demand

2-2b. Required Containers, Preservation Techniques, and Holding Times for Aqueous Samples.

Parameter	Volume Required (b)	Container(c)	Preservative	Holding Time
Inorganics				
Metals (including Mercury)	1 Liter	P	pH <2 with HNO_3 Cool, 4°C	6 months (28 days for Hg)
Arsenic	500 mLs	P	pH <2 with HNO_3 Cool, 4°C	6 months
Cyanide	500 mLs	P,G	NaOH to pH >12 Ascorbic Acid Cool, 4°C	14 days
Sulfide	500 mLs	P,G	NaOH to pH >9 Zinc Acetate Cool, 4°C	7 days
Biochemical Oxygen Demand	1000 mLs	P,G	Cool, 4°C	48 hours
Hexavalent Chromium	250 mLs	P,G	Cool, 4°C	24 hours
Nitrogen (Ammonia, Nitrate + Nitrite), Chemical Oxygen Demand	250 mLs	P,G	H_2SO_4 to pH <2 Cool, 4°C	28 days
Nitrogen (Total Kjeldahl), Total Phosphorus	500 mLs	P,G	H_2SO_4 to pH <2 Cool, 4°C	28 days
Physical Parameters				
Site Water for Effluent Elutriate Test	10 gallons	G	Cool, 4°C	None specified
Organics				
Total Organic Carbon	3-40 mLs	G, teflon-lined, septa cap	H_2SO_4 or HCl to pH <2; Cool, 4°C	28 days
Volatile Organics	3-40 mLs	G, teflon-lined, septa cap	HCl to pH <2; Cool, 4°C	14 days
Organotins	2 Liters	G, teflon-lined cap	Cool, 4°C	7 days until extraction, 40 days after extraction
Pesticides (Organochlorine and Organophosphate), Semivolatile Organics, Polynuclear Aromatic Hydrocarbons, PCBs (Aroclors and Congeners)	8 Liters	G, teflon-lined cap	Cool, 4°C	7 days until extraction, 40 days after extraction
Polychlorinated Dioxins/Furans	2 Liters	G, teflon-lined cap	Cool, 4°C	1 year until extraction, 40 days after extraction

(a) From time of sample collection.
(b) Additional volume will need to be provided for samples designated as MS/MSDs
(c) P = plastic; G = glass.

TABLE 2-3. SAMPLE SUMMARY FOR LOCATION EA-01
SEAGIRT MARINE TERMINAL SAND CHARACTERIZATION (JUNE 2006)

Location ID	Easting(ft)	Northing(ft)	Depth (ft)	Tide (ft MLLW)	Corrected depth (ft MLLW)	Sample Interval (ft)	Sample Interval (ft MLLW)	Material Type	Recovery (ft)	Date	Time	Chemistry And Elutriate Sample ID
EA-01A	1441808.6	573754.8	48.0	1.1	46.9	48-50.5	46.9-49.4	Gray fine-medium sand, clay, gravel	1.50	6/5/2006	1257	Sediment not used for composite
						50.5-53	49.4-51.9	Gray silty clay, fine sand, gravel	2.60	6/5/2006	1315	EA-01/02-SED
						53-55.5	51.9-54.4	Gray silty clay, fine sand, gravel	2.55	6/5/2006	1331	
						55.5-58	54.4-56.9	Gray silty clay, fine sand, gravel to brown silty fine sand, small pieces of peat	2.50	6/5/2006	1346	
EA-01B	1441824.2	573785.2	48.7	1.4	47.3	48-50.5	46.6-49.1	Gray sandy silt, gray fine sand	1.70	6/5/2006	1437	Sediment not used for composite
						50.5-53	49.1-51.6	Gray fine sand and gravel, silty clay to dark gray fine sand and clay	1.70	6/5/2006	1441	EA-01/02-SED
						53-55.5	51.6-54.1	Gray sandy silt, gray fine sand	1.70	6/5/2006	1447	
						55.5-58	54.1-56.6	Gray silty sand to dark gray silty sand	1.85	6/5/2006	1456	
EA-01C	1441798.8	573801.5	47.5	1.1	46.4	47-49	45.9-47.9	Gray clay, gravel	0.85	6/7/2006	0932	Sediment not used for composite
						49-51	47.9-49.9	Gray clay with fine sand at bottom	1.90	6/7/2006	0947	Sediment not used for composite
						51-53	49.9-51.9	Gray fine sand with some clay	0.90	6/7/2006	955	EA-01/02-SED
						53-55	51.9-53.9	Gray fine sand	3.50	6/7/2006	1009	
						55-57	53.9-55.9	Gray sandy clay with brown sand at bottom	1.90	6/7/2006	1020	

Notes: (1) all coordinates are in MD State Plane, NAD 83, ft
(2) Multiple core samples were collected from each location to make analytical sample composites.

TABLE 2-4. SAMPLE SUMMARY FOR LOCATION EA-02
SEAGIRT MARINE TERMINAL SAND CHARACTERIZATION (JUNE 2006)

Location ID	Easting(ft)	Northing(ft)	Depth (ft)	Tide (ft MLLW)	Corrected depth (ft MLLW)	Sample Interval (ft)	Sample Interval (ft MLLW)	Material Type	Recovery (ft)	Date	Time	Chemistry And Elutriate Sample ID
EA-02A	1441957.6	574081.4	48.0	0.8	47.2	48.5-51	47.7-50.2	Gray silty sand and clay to dark tan silty sand. Upper 1 ft. is silt.	1.55	6/6/2006	1034	Sediment not used for composite
						51-53.5	50.2-52.7	Gray silty sand and clay	2.35	6/6/2006	1034	EA-01/02-SED
						53.5-56	52.7-55.2	Gray silty sand and clay	1.55	6/6/2006	1034	
EA-02B	1441955.5	574062.2	49.0	0.8	48.2	49-51.5	48.2-50.7	Dark gray silty sand	2.35	6/6/2006	1146	Sediment not used for composite
						51.5-54	50.7-53.2	Dark gray silty sand with peat chips	2.25	6/6/2006	1159	EA-01/02-SED
						54-56.5	53.2-55.7	Dark gray silty sand with gravel lenses	1.70	6/6/2006	1212	
EA-02C	1441994.9	574070.8	49.0	0.8	48.2	49-51	48.2-50.2	Sediment type not recorded	-	6/7/2006	1118	Sediment not used for composite
						51-53	50.2-52.2	Sediment type not recorded	2.35	6/7/2006	1131	EA-01/02-SED
						53-55	52.2-54.2	Sediment type not recorded	1.65	6/7/2006	1150	
						55-57	54.2-56.2	Sediment type not recorded	1.40	6/7/2006	1204	
EA-02D	1442028.4	574054.2	48.5	0.9	47.6	48.5-50.5	47.6-49.6	Sediment type not recorded	-	6/7/2006	1245	Sediment not used for composite
						50.5-52.5	49.6-51.6	Gray silty sand and gray sand	2.15	6/7/2006	1258	EA-01/02-SED
						52.5-54.5	51.6-53.6	Gray sand and clay	2.65	6/7/2006	1310	
						54.5-56.5	53.6-55.6	Gray sand	1.5	6/7/2006	1325	
						56.5-57	55.6-56.1	Brown medium sand	0.4	6/7/2006	1334	

Notes: (1) all coordinates are in MD State Plane, NAD 83, ft
(2) Multiple core samples were collected from each location to make analytical sample composites.

TABLE 2-5. SAMPLE SUMMARY FOR LOCATION EA-03
SEAGIRT MARINE TERMINAL SAND CHARACTERIZATION (JUNE 2006)

Location ID	Easting(ft)	Northing(ft)	Depth (ft)	Tide (ft MLLW)	Corrected depth (ft MLLW)	Sample Interval (ft)	Sample Interval (ft MLLW)	Material Type	Recovery (ft)	Date	Time	Chemistry And Elutriate Sample ID
EA-03A	1442828	575255.6	46.7	1	45.7	49.5-52	48.5-51	Dark tan medium-coarse sand, gravel	1.65	6/13/2006	1257	EA-03/04-SED
						52-54.5	51-53.5	Dark tan medium-coarse sand, gravel	1.4	6/13/2006	1306	
						54.5-57	53.5-56	Dark tan/brown medium-coarse sand, gravel	0.8	6/13/2006	1314	
EA-03B	1442837.3	575251.6	45	0.8	44.2	47-49.5	46.2-48.7	Dark tan/brown medium-coarse sand, gravel	0.55	6/13/2006	1351	
						49.5-52	48.7-51.2	Dark tan/brown medium-coarse sand	1	6/13/2006	1403	
						52-54.5	51.2-53.7	Brown fine-coarse sand, gravel	1	6/13/2006	1411	
						54.5-57	53.7-56.2	Tan fine-medium sand, gray clay	1.25	6/13/2006	1422	
EA-03C	1442796.7	575283	48	2.1	45.9	50.5-53	48.4-50.9	Coarse brown sand, gravel and cobble	0.75	6/14/2006	1025	
						53-55.5	50.9-53.4	Brown medium sand, gravel	0.4	6/14/2006	1037	
						55.5-58	53.4-55.9	Brown medium-coarse sand, gray clay	1.25	6/14/2006	1048	

Notes: (1) all coordinates are in MD State Plane, NAD 83, ft

(2) Multiple core samples were collected from each location to make analytical sample composites.

TABLE 2-6. SAMPLE SUMMARY FOR LOCATION EA-04
SEAGIRT MARINE TERMINAL SAND CHARACTERIZATION (JUNE 2006)

Location ID	Easting(ft)	Northing(ft)	Depth (ft)	Tide (ft MLLW)	Corrected depth (ft MLLW)	Sample Interval (ft)	Sample Interval (ft MLLW)	Material Type	Recovery (ft)	Date	Time	Chemistry And Elutriate Sample ID
EA-04A	1442907	575434.4	45	2	43	49-51	47-49	Brown medium-coarse sand, gravel	0.7	6/14/2006	1156	EA-03/04-SED
						51-53	49-51	Brown medium-coarse sand	0.65	6/14/2006	1205	
						53-55.5	51-53.5	Brown medium-coarse sand, some gravel	0.65	6/14/2006	1215	
						55.5-58	53.5-56	Gray clay, gravel, medium sand	1.9	6/14/2006	1223	
EA-04B	1442893	575435.9	45	1.7	43.3	47-49	45.3-47.3	Dark gray sandy silty clay, gravel	0.8	6/14/2006	1256	
						49-51	47.3-49.3	Brown medium-coarse sand, gravel	0.5	6/14/2006	1301	
						51-53	49.3-51.3	Dark tan fine-coarse sand, gravel	1.3	6/14/2006	1311	
						53-55.5	51.3-53.8	Dark tan fine-coarse sand, gravel	1.2	6/14/2006	1320	
						55.5-58	53.8-56.3	Dark tan fine-medium sand, gray clay	1.7	6/14/2006	1328	

Notes: (1) all coordinates are in MD State Plane, NAD 83, ft
(2) Multiple core samples were collected from each location to make analytical sample composites.

TABLE 2-7. SAMPLE SUMMARY FOR LOCATION EA-05
SEAGIRT MARINE TERMINAL SAND CHARACTERIZATION (JUNE 2006)

Location ID	Easting(ft)	Northing(ft)	Depth (ft)	Tide (ft MLLW)	Corrected depth (ft MLLW)	Sample Interval (ft)	Sample Interval (ft MLLW)	Material Type	Recovery (ft)	Date	Time	Chemistry And Elutriate Sample ID
EA-05A	1442726.8	576762.7	22	1.3	20.7	44.5-46.5	43.2-45.2	Brown to orange-tan fine-medium sand, gravel	0.8	6/14/2006	1500	EA-05/06-SED
						46.5-48.5	45.2-47.2	Brown medium-coarse sand	0.65	6/14/2006	1508	
						48.5-50.5	47.2-49.2	Brown fine-medium sand	0.4	6/14/2006	1516	
						50.5-52.5	49.2-51.2	Dark gray and tan fine-medium sand, gravel	0.7	6/14/2006	1524	
						52.5-55	51.2-53.7	Gravel, dark tan fine-medium sand	1.2	6/14/2006	1535	
						55-57.5	53.7-56.2	Tan fine-medium sand, gravel	0.95	6/14/2006	1546	
EA-05B	1442723.7	576749.5	22	1.7	20.3	44.5-46.5	42.8-44.8	Brown medium-coarse sand, gravel	1.45	6/15/2006	1009	
						46.5-48.5	44.8-46.8	Brown medium-coarse sand, gravel	0.65	6/15/2006	1019	
						48.5-50.5	46.8-48.8	Brown fine sand, gravel	0.5	6/15/2006	1027	
						50.5-52.5	48.8-50.8	Brown fine sand, gravel	0.85	6/15/2006	1036	
						52.5-55	50.8-53.3	Tan fine sand, gravel	1.55	6/15/2006	1100	
						55-57.5	53.3-55.8	Tan fine clayey sand, gravel	1.1	6/15/2006	1108	

Notes: (1) all coordinates are in MD State Plane, NAD 83, ft
(2) Multiple core samples were collected from each location to make analytical sample composites.

TABLE 2-8. SAMPLE SUMMARY FOR LOCATION EA-06
SEAGIRT MARINE TERMINAL SAND CHARACTERIZATION (JUNE 2006)

Location ID	Easting(ft)	Northing(ft)	Depth (ft)	Tide (ft MLLW)	Corrected depth (ft MLLW)	Sample Interval (ft)	Sample Interval (ft MLLW)	Material Type	Recovery (ft)	Date	Time	Chemistry And Elutriate Sample ID
EA-06A	1442750.7	576885.4	22	1.6	20.4	44.5-46.5	42.9-44.9	Gray clayey medium-coarse sand, orange/brown medium-coarse sand	0.9	6/15/2006	1231	EA-05/06-SED
						46.5-48.5	44.9-46.9	Gray fine-coarse sand, gravel	1.2	6/15/2006	1241	
						48.5-50.5	46.9-48.9	Gray sandy gravel	0.7	6/15/2006	1308	
						50.5-52.5	48.9-50.9	Gray/dark gray medium-coarse sand, gravel	1.65	6/15/2006	1321	
						52.5-55	50.9-53.4	Gray fine-medium sand	0.9	6/15/2006	1343	
						55-57.5	53.4-55.9	Gray/tan fine-coarse sand, gravel	1.25	6/15/2006	1352	

Notes: (1) all coordinates are in MD State Plane, NAD 83, ft
(2) Multiple core samples were collected from each location to make analytical sample composites.

TABLE 2-9. SAMPLE SUMMARY FOR LOCATION EA-07
SEAGIRT MARINE TERMINAL SAND CHARACTERIZATION (JUNE 2006)

Location ID	Easting(ft)	Northing(ft)	Depth (ft)	Tide (ft MLLW)	Corrected depth (ft MLLW)	Sample Interval (ft)	Sample Interval (ft MLLW)	Material Type	Recovery (ft)	Date	Time	Chemistry And Elutriate Sample ID
EA-07A	1442256.3	575921.7	48	1	47	48.5-51	47.5-50	1.0 ft. black silt (not used for composite), 0.5 ft. gravel (not used in composite)	1.5	6/6/2006	1400	Sediment not used for composite
						51-53.5	50-52.5	Gravel, dark gray/tan fine medium sand	1.2	6/6/2006	1426	EA-07/08-SED
						53.5-56	52.5-55	Tan fine-coarse sand	1.4	6/6/2006	1440	
EA-07B	1442230.4	575935.8	49.5	1.8	47.7	50-52	48.2-50.2	Sediment type not recorded	0.3	6/8/2006	1000	
						52-54	50.2-52.2	Gravel and coarse sand	1.6	6/8/2006	1056	
						54-56	52.2-54.2	Gravel and coarse sand	0.5	6/8/2006	1125	
						56-58	54.2-56.2	Coarse sand	0	6/8/2006	1141	
EA-07C	1442220.3	575968.21	48	1.3	46.7	49-51	47.7-49.7	Black silt	-	6/8/2006	1209	Sediment not used for composite
						51-53	49.7-51.7	Coarse sand	0.8	6/8/2006	1232	EA-07/08-SED
						53-55	51.7-53.7	-	0	6/8/2006	1254	
						55-57.5	53.7-56.2	Medium sand	0.3	6/8/2006	1312	
EA-07D	1442215.8	575972.2	47	1.4	45.6	50-52	48.6-50.6	Black silt	0	6/8/2006	1339	Sediment not used for composite
						52-54	50.6-52.6	Gravel, coarse sand	0.3	6/8/2006	1406	EA-07/08-SED
						54-56	52.6-54.6	Gravel, coarse sand	0.5	6/8/2006	1420	
						56-58	54.6-56.6	Medium-coarse sand	1.1	6/8/2006	1428	
EA-07E	1442205	575984.3	47	1.7	45.3	49.5-51	47.3-49.3	Black silt	-	6/8/2006	1506	Sediment not used for composite
						51-53.5	49.3-51.8	-	0	6/8/2006	1519	EA-07/08-SED
						53.5-55.5	51.8-53.8	No sediment type recorded	0.5	6/8/2006	1530	
						55.5-57.5	53.8-55.8	-	0	6/8/2006	1535	

Notes: (1) all coordinates are in MD State Plane, NAD 83, ft
(2) Multiple core samples were collected from each location to make analytical sample composites.

TABLE 2-10. SAMPLE SUMMARY FOR LOCATION EA-08
SEAGIRT MARINE TERMINAL SAND CHARACTERIZATION (JUNE 2006)

Location ID	Easting(ft)	Northing(ft)	Depth (ft)	Tide (ft MLLW)	Corrected depth (ft MLLW)	Sample Interval (ft)	Sample Interval (ft MLLW)	Material Type	Recovery (ft)	Date	Time	Chemistry And Elutriate Sample ID
EA-08A	1442300.9	576136.9	47.5	1.9	45.6	50.5-53	48.6-51.1	Gray clay, tan gravel	1.95	6/9/2006	0955	EA-07/08-SED
						53-55.5	51.1-53.6	Gray clay, clay and gravel	2.05	6/9/2006	1019	
						55.5-58	53.6-56.1	Brown silty medium-coarse sand, gravel	0.7	6/9/2006	1030	
EA-08B	1442307.5	576124.1	47.5	1.3	46.2	50.5-53	49.2-51.7	Gray clay, clay with gravel	1.9	6/9/2006	1136	
						53-55.5	51.7-54.2	Gray clay, tan sand, gravel	2.1	6/9/2006	1152	
						55.5-58	54.2-56.7	Tan silty medium-coarse sand, gravel	0.6	6/9/2006	1207	
EA-08C	1442342	576147.8	49	1.8	47.2	51-53	49.2-51.2	Gray/tan clay, gravel	1.05	6/13/2006	0950	
						53-55.5	51.2-53.7	Gray silty clay	1.9	6/13/2006	1000	
						55.5-58	53.7-56.2	Tan medium-coarse sand and gravel, gray clay	1.6	6/13/2006	1017	
EA-08D	1442357.3	576140.9	47.8	1.6	46.2	50-52.5	48.4-50.9	Gray silty sandy clay, gray clay, gravel	1.9	6/13/2006	1109	
						52.5-55	50.9-53.4	Gray sandy clay, tan silty sand	1.7	6/13/2006	1120	
						55-57.5	53.4-55.9	Tan silty sand with clay	0.95	6/13/2006	1140	

Notes: (1) all coordinates are in MD State Plane, NAD 83, ft
(2) Multiple core samples were collected from each location to make analytical sample composites.

TABLE 2-11. SAMPLE SUMMARY FOR LOCATION EA-09
SEAGIRT MARINE TERMINAL SAND CHARACTERIZATION (JUNE 2006)

Location ID	Easting(ft)	Northing(ft)	Depth (ft)	Tide (ft MLLW)	Corrected depth (ft MLLW)	Sample Interval (ft)	Sample Interval (ft MLLW)	Material Type	Recovery (ft)	Date	Time	Chemistry And Elutriate Sample ID
EA-09A	1441960.4	577144.6	19	0.8	18.2	45-47	44.2-46.2	Gray silty fine sand	1.15	6/16/2006	0824	EA-09/10-SED
						47-49.5	46.2-48.7	Gray silty fine sand	0.5	6/16/2006	0833	
						49.5-52	48.7-51.2	Gray silty fine sand	0.9	6/16/2006	0845	
						52-54.5	51.2-53.7	Gray silty fine sand, trace gravel	0.4	6/16/2006	0852	
						54.5-57	53.7-56.2	Gray silty fine sand, tan medium-coarse sand, trace gravel	1.15	6/16/2006	0902	
EA-09B	1441963.8	577148	19	1.3	17.7	45-47	43.7-45.7	Gray fine-medium sand, trace shell hash	0.6	6/16/2006	0950	
						47-49.5	45.7-48.2	Gray silty sand, shell hash	0.1	6/16/2006	1002	
						49.5-52	48.2-50.7	Dark gray silty fine sand	0.8	6/16/2006	1010	
						52-54.5	50.7-53.2	Gray silty fine sand	0.65	6/16/2006	1015	
						54.5-57	53.2-55.7	Gray silty fine sand, tan medium-coarse sand, gravel	1.3	6/16/2006	1027	

Notes: (1) all coordinates are in MD State Plane, NAD 83, ft
(2) Multiple core samples were collected from each location to make analytical sample composites.

TABLE 2-12. SAMPLE SUMMARY FOR LOCATION EA-10
SEAGIRT MARINE TERMINAL SAND CHARACTERIZATION (JUNE 2006)

Location ID	Easting(ft)	Northing(ft)	Depth (ft)	Tide (ft MLLW)	Corrected depth (ft MLLW)	Sample Interval (ft)	Sample Interval (ft MLLW)	Material Type	Recovery (ft)	Date	Time	Chemistry And Elutriate Sample ID
EA-10A	1442308.1	576996.9	19.5	1.7	17.8	45-47	43.3-45.3	Light tan fine-medium sand	1.25	6/16/2006	1158	EA-09/10-SED
						47-49	45.3-47.3	Tan coarse sand, gravel	0.6	6/16/2006	1208	
						49-51	47.3-49.3	Gravel, gray silty fine sand, clay	1.9	6/16/2006	1220	
						51-53	49.3-51.3	Tan fine-medium sand, gravel	1.75	6/16/2006	1232	
						53-55.5	51.3-53.8	Tan fine-medium sand, gravel	1.25	6/16/2006	1241	
						55.5-58	53.8-56.3	Large gravel	0.2	6/16/2006	1302	
EA-10B	1442309.7	576996	19	1.4	17.6	45-47.5	43.6-46.1	Gray/tan fine-medium sand	1347	6/16/2006	1347	
						47.5-50	46.1-48.6	Tan medium-coarse sand	1401	6/16/2006	1401	

Notes: (1) all coordinates are in MD State Plane, NAD 83, ft
(2) Multiple core samples were collected from each location to make analytical sample composites.

3. ANALYTICAL METHODS AND DATA EVALUATION

The majority of the analytical testing of sediment, site water, and elutriates for the Seagirt sand/gravel characterization was conducted by STL–Pittsburgh, located in Pittsburgh, Pennsylvania. Additional analytical services were provided by STL–Burlington [butyltins, specific gravity, and total organic carbon (TOC) in sediment], STL–North Canton [total phosphorus and total Kjeldahl nitrogen (TKN)], and E2CR (grain size).

For bulk sediment samples, sample weights were adjusted for percent moisture (up to 50 percent moisture) prior to analysis to achieve the lowest possible detection limits. Analytical results are reported on a dry weight basis and are reported to the method detection limit (MDL) for metals, PCBs, PAHs, chlorinated pesticides, SVOCs, and VOCs. Results for wet chemistry parameters, butyltins, and dioxin and furan congeners are reported to the reporting limit (RL).

3.1 ANALTICAL METHODS

All inorganic and organic compounds were determined using the methods listed in Table 3-1. To meet program-specific regulatory requirements for chemicals of concern, all methods/standard operating procedures (SOP) were followed as stated with some specific requirements noted below:

Polychlorinated Biphenyl (PCB) Congeners
PCBs for these projects were analyzed and quantified as individual congeners by SW846 Method 8082. The 26 congeners included all of the "summation" and "highest priority" congeners, plus several of the "secondary priority" congeners, specified in Table 9-3 of the ITM.

Total Organic Carbon (TOC)
TOC in sediments was determined using the 1988 USEPA Region II combustion oxidation procedure (the Lloyd Kahn procedure).

Polynuclear Aromatic Hydrocarbons (PAHs)
To achieve the target detection limits (TDLs) referenced in Quality Assurance/Quality Control Guidance for Sampling and Analysis of Sediments, Water, and Tissues for Dredged Material Evaluations - Chemical Evaluations (EPA 823-B-95-001, April 1995), the PAHs were determined utilizing SW846 Method 8270C using Selective Ion Monitoring (SIM). For those samples where both semivolatiles by SW846 Method 8270C and PAHs by SW846 Method 8270C SIM were requested, both analyses were performed on the same extract. For those samples, the evaluation of method performance was based on the determined recoveries of surrogates and control analytes (in the LCS and MS/MSDs) from the semivolatiles by 8270C (full scan GC/MS) analyses. This was done because the spiked concentrations exceeded calibration range for the PAH by GC/MS SIM analyses.

Metals
Metals were determined utilizing Inductively Coupled Plasma (ICP) or Inductively Coupled Plasma/Mass Spectrometry (ICP/MS), according to the methodology specified, with the following exceptions:

- For mercury, samples were analyzed by Cold Vapor Atomic Absorption (CVAA) method [SW846 7471A (sediment)].

Polychlorinated Dioxins/Furans
Dioxin and furan congeners for the sediment, site water, and elutriate samples were reported as 17 individual isomers using method EPA 1613. The results were reported based on a sample-specific estimated detection limit (EDL), which takes into account matrix interferences and provides the most accurate limit of detection for each sample.

Acid Volatile Sulfides (AVS) and Simultaneously Extracted Metals (SEM)
The AVS and SEM determinations were performed following the procedures specified in the USEPA April 1991 *Draft Analytical Method for the Determination of Acid Volatile Sulfide in Sediment.* The concentrations of five SEMs (cadmium, copper, lead, nickel, and zinc) were determined. The reported values for both AVS and SEM were in μmoles/gram.

Using this method, the five metals (cadmium, copper, lead, nickel, and zinc) were extracted, measured, and added together, including any values that are "B" (analyte detected, but below the reporting limit) or "J" (analyte detected in the method blank) qualified. If a metal was not detected (ND), it was considered a zero in the calculation. The sum of the concentrations of these five metals was then compared to the amount of AVS detected in the same sediment sample. The total SEM concentration was divided by the AVS concentration. The resulting value is the SEM/AVS ratio. If AVS was not detected (ND) in the sample, then the SEM/AVS ratio was not calculated.

Standard Elutriate Test
The Standard Elutriate Test (SET) was used to predict the release of contaminants to the water column resulting from open water placement of dredged material. The SET was performed following the procedures in the *ITM* (USEPA/USACE 1998). For the SET, the laboratory created the elutriate based on a sediment-to-water ratio of 1:4, on a volume basis. The sediment and site water volume requirements needed for the SET were dependent on the number and type of analytical tests to be performed on the elutriate.

The sediment/water mixtures were each thoroughly mixed for 30 minutes. The mixtures were then allowed to settle, and the supernatants were siphoned off, filtered to remove particulates, and then analyzed for the dissolved chemical constituents.

3.2 DETECTION LIMITS

The detection limit is a statistical concept that corresponds to the minimum concentration of an analyte above which the net analyte signal can be distinguished with a specified probability from the signal because of the noise inherent in the analytical system. The method detection limit concept (MDL) was developed by USEPA, and is defined as "the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero" (40 CFR 136, Appendix B). Laboratory-specific MDLs applicable to this project are listed in Tables 3-23 for sediment samples. The tables include the TDLs referenced in the *QA/QC Guidance for Sampling and Analysis of Sediments, Water, and Tissues for*

Dredged Material Evaluations – Chemical Evaluations (EPA 823-B-95-001, April 1995) plus appropriate Marine Sediment Quality Guidelines (SQGs) (Buchman 1999). Table 3-2 includes the Toxicity Characteristic Rule's Regulatory Level for each parameter. All analytical parameters, except wet chemistry parameters and organotins, were quantitated to the MDL. All detected values quantified as greater than/equal to the MDL but less than the laboratory reporting limit (RL) were qualified as estimated.

For sediment analyses, sample weight was adjusted for percent moisture (up to 50 percent moisture), prior to analysis, where appropriate, to achieve the lowest possible reporting limits.

3.3 LABORATORY QUALITY CONTROL SAMPLES

Quality control samples specified in the *ITM* were analyzed at the frequency stated in the following table. Standard Reference Materials (SRMs) were obtained from the National Institute of Standards and Technology (NIST) or a comparable source, if available.

QC Sample	Frequency
Standard Reference Material	1 per analytical batch of 1-20 samples, where available
Method Blanks	1 per analytical batch of 1-20 samples
Laboratory Control Sample	1 per analytical batch of 1-20 samples
Surrogates	Spiked into all field and QC samples (Organic Analyses)
Sample Duplicates	1 per analytical batch of 1-20 samples (Inorganic Analyses)
Matrix Spike/Matrix Spike Duplicate	1 per analytical batch of 1-20 samples

Standard Reference Material

SRMs represent performance-based QA/QC. A standard reference material is a soil/solution with a certified concentration that is analyzed as a sample and is used to monitor analytical accuracy.

SRMs were analyzed for the following matrix/fractions:

- **Sediment**: organochlorine pesticides, PCB congeners, metals, PAHs, dioxin and furan congeners
- **Water**: organochlorine pesticides, PCB congeners, PAHs, dioxins and furan congeners

Control criteria apply only to those analytes having SRM true values greater than 10 times the MDL established for the method.

Method Blanks

The method (reagent) blank is used to monitor laboratory contamination. The method blank is usually a sample of laboratory reagent water processed through the same analytical procedure as the sample (i.e., digested, extracted, distilled). Method blanks were analyzed at a frequency of one per every analytical preparation batch of 20 or fewer samples.

Laboratory Control Sample (LCS)
The LCS is a fortified method blank consisting of reagent water or solid fortified with the analytes of interest for single-analyte methods and selected analytes for multi-analyte methods according to the appropriate analytical method. LCS's were prepared and analyzed with each analytical batch. Analyte recoveries were used to monitor analytical accuracy and precision.

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)
A fortified sample (matrix spike) is an aliquot of a field sample that is fortified with the analyte(s) of interest and analyzed to monitor matrix effects associated with a particular sample. Samples to be spiked were chosen at random. The final spiked concentration of each analyte in the sample was at least 10 times the calculated MDL. A duplicate-fortified sample (matrix spike duplicate) was analyzed for every batch of 20 or fewer samples.

Sample Duplicates
A sample duplicate is a second aliquot of a field sample that is analyzed to monitor analytical precision associated with that particular sample. Sample duplicates were performed for every batch of 20 or fewer samples for those analytes that did not have MS/MSD analyses.

Surrogates
Surrogates are organic compounds that are similar to analytes of interest in chemical composition, extraction, and chromatography, but are not normally found in environmental samples. Generally, surrogates are not used for inorganic analyses. These compounds were spiked into all blanks, standards, samples, and spiked samples prior to analysis for organic parameters. Percent recoveries were calculated for each surrogate. Surrogates were used to assess method performance and sample measurement bias. If sample dilution caused the surrogate concentration to fall below the quantification limit, surrogate recoveries were not calculated.

3.4 DATA ANALYSIS

Calculation of the Simultaneously Extracted Metals (SEM)/ Acid Volatile Sulfides (AVS) Ratio
The bioavailability of divalent metals to aquatic organisms is influenced by the ratio of simultaneously extracted metals (SEM) / acid volatile sulfides (AVS). In low oxygenated environments, metals may precipitate with sulfides, making them unavailable for uptake by aquatic organisms. Using this method, five metals (cadmium, copper, lead, nickel, and zinc) were extracted, measured, and added together, including any values that are "B" or "J" qualified. If a metal is not detected (ND), it was considered a zero in the calculation. The sum of the concentrations of these five metals was then compared to the amount of AVS detected in the same sediment sample. If AVS was not detected (ND) in the sample, the SEM/AVS ratio was not calculated.

Calculation of Total PCBs and Total PAHs
For each sample, total PCB concentrations were determined by summing the concentrations of the 18 summation congeners (as specified in Table 9-3 of the ITM) and multiplying the total by a factor of two. Multiplying by a factor of two estimated the total PCB concentration and

accounted for additional congeners that were not tested as part of this program. These determinations were based upon testing of specific congeners recommended in the ITM and upon the National Oceanic and Atmospheric Administration (NOAA 1993) approach for total PCB determinations.

Total PAH concentrations were determined for each sample by summing the concentrations of the individual PAHs. For both the total PCB and total PAH concentrations, two values were reported, each representing the following methods for treating concentrations below the analytical detection limit:

- Non-detects = 0 (ND=0)
- Non-detects = 1/2 of the method detection limit (ND=½MDL)

Substituting one-half the detection limit for non-detects (ND=½MDL) provides a conservative estimate of the concentration. This method, however, tends to produce results that are biased high, especially in data sets where the majority of samples are non-detects. This overestimation is important to consider when comparing the calculated total values to criteria values.

Calculation of Dioxin TEQs

The Toxicity Equivalency Quotients (TEQs) for dioxin and furan congeners were calculated following the approach in USEPA 1989. Each congener was multiplied by a Toxicity Equivalency Factor (TEF) for human health (Van den Berg et al. 1998). Then, the congener concentrations were summed. Concentrations that were flagged with a "B" (detected in blank) or "EMPC" (estimated maximum possible concentration) were not included in the TEQ calculation as per the USEPA Region III dioxin validation guidance (USEPA Region III 1999a). The dioxin TEQs were calculated using both ND=0 and ND=1/2 Reporting Limit (RL).

Comparison to Sediment Quality Guidelines (SQGs)

Sediment quality guidelines are numerical chemical concentrations intended to either be protective of biological resources, or predictive of adverse effects to those resources, or both (Wenning and Ingersoll 2002). USACE's guidance on using SQGs in dredged material management acknowledges the limitations of each approach used to derive SQGs to date, but concludes that SQGs are still useful as initial screening values. If, based on the initial screening using established SQGs, there is a 'reason to believe' that the material is not contaminated, no further chemical or toxicological testing would be necessary, as indicated by the ITM [USACE–Waterways Experiment Station (WES) 1998].

The SQGs were developed as informal (non-regulatory) guidelines for use in interpreting chemical data from analyses of sediments. Several biological-effects approaches have been used to assess marine/estuarine sediment quality relative to the potential for adverse effects on benthic organisms, including Threshold Effects Level (TEL) / Probable Effects Level (PEL) (MacDonald et al. 1996) approach. The TEL and PEL values were derived using concentrations with both effects and no observed effects (Long and MacDonald 1998). TELs typically represent concentrations below which adverse biological effects were rarely observed, while PELs typically represent concentrations in the middle of the effects range and above which effects were more frequently observed (Long and Macdonald 1998). Concentrations that are between

the TEL and PEL represent the concentrations at which adverse biological effects occasionally occur.

Concentrations of detected analytes in sediment samples from Masonville were compared to SQGs (MacDonald et al. 1996) for marine sediments to assess the sediment quality of the material proposed for dredging. SQGs were used to identify potential adverse biological effects associated with contaminated sediments. TEL and PEL values for marine/estuarine sediments are provided in Table 3-2.

Recent evaluations of large chemical and toxicity data sets (O'Connor et al. 1998; O'Connor and Paul 1999) have indicated that TEL/PEL screening is not a reliable method for predicting sample toxicity or for screening samples out as non-toxic. The studies indicate that:

- Not exceeding a TEL should reliably predict the absence of whole-sediment toxicity,
- Exceeding a PEL (much less a TEL) does not reliably indicate toxicity, and
- Many, perhaps even most, sediments that exceed one or more PELs are not toxic.

Since TELs/PELs are widely used despite their recently demonstrated over-sensitivity in predicting toxicity, the concentrations of contaminants in the sediments sampled in this project were compared to the TEL and PEL values for all chemical constituents for which TEL/PEL values have been developed. For dredged material evaluations, SQGs are used as a tool to assist with identification of constituents of potential concern (COPCs) and to provide additional weight of evidence in the evaluation (USACE–WES 1998).

Comparison to USEPA and State of Maryland Water Quality Criteria

Analytes detected in the site water and standard elutriate samples were compared to USEPA and State of Maryland saltwater acute and chronic water quality criteria for aquatic life. Criteria were derived from USEPA's *National Recommended Water Quality Criteria (2006)* and the Code of Maryland Regulations (COMAR 26.08.02.03-2). The State of Maryland's saltwater acute and chronic water quality criteria for aquatic life are the same as the USEPA's. However, for copper only, the State of Maryland has developed an acute estuarine water quality criteria, which is applicable in this study based on the salinities measured in the field. Detected concentrations of copper were compared to both the USEPA saltwater acute and chronic criteria and the State of Maryland's estuarine chronic water quality criterion in this study.

The USEPA and State of Maryland acute and chronic saltwater quality criteria for metals were developed for *dissolved* metal concentrations, and are compared to total metals concentrations in this study as a conservative evaluation of the analytical results. The USEPA's acute criterion is based on 1-hour average exposure concentrations, and the USEPA's chronic criterion is based on 4-hour average exposure concentrations.

Calculation of Acute and Chronic Ammonia (NH_3-N) Criteria

The USEPA acute and chronic criteria for determining the toxicity of ammonia (NH_3-N) to aquatic life is based upon temperature, pH, and salinity conditions of the waterbody. The acute and chronic ammonia criteria for this analysis were based on average water quality parameters

recorded at mid-depth during the Fall 2004 fish and benthic surveys conducted at Masonville in October 2004: salinity (6.5 ppt), temperature (18.8°C), and pH (6.9). This is consistent with the analysis for the Masonville borrow sediment quality and reflects the average conditions expected at the Masonville site during construction. The calculated acute criterion was 43 mg/L, and the calculated chronic criterion was 6.4 mg/L.

Table 3-1. Analytical Methods for Seagirt Samples

Analyte/Method	Surface Elutriates	Proposed Borrow Material-Sediment	Proposed Borrow Material - Elutriates
Ammonia Nitrogen (EPA 350.1)	X	X	X
Atterberg Limits (ASTM D4318)	-	X	-
Acid Volatile Sulfides/Simultaneously Extracted Metals (USEPA 1991)*	-	X	-
Biochemical Oxygen Demand (EPA 405.1)	X	X	X
Butyl Tins	X	X	X
Chromium - Hexavalent (SW846 7196A)	X	X	X
Chemical Oxygen Demand (EPA 410.4)	X	X	X
Cyanide - Total (SW846 9012A)	X	X	X
Dioxins (EPA 1613) 17 isomers + totals	X	X	X
Grain Size (ASTM D422)	-	X	-
Metals - Priority Pollutants (SW846 6010B/7471A)	X	X	X
Nitrate + Nitrite (EPA 353.2)	X	X	X
Polynuclear Aromatic Hydrocarbons (SW-846 8270C SIM)	X	X	X
PCB Aroclors (SW846 8082)	X	X	X
PCB Congeners (SW846 8082) - ITM	X	X	X
Pesticides (SW846 8081A) - ITM	X	X	X
Pesticides-Organophosphate(SW846 8141A)-ITM	X	X	X
pH - Aqueous (150.1)	X	-	X
pH - Nonaqueous (SW846 9045C)	-	X	-
Phosphorus - Total (EPA 365.2)	X	X	X
Semivolatiles - ITM list (SW846 8270C)	X	X	X
Specific Gravity (ASTM D854)	-	X	-
Standard Elutriate Generation	X	-	X
Sulfides - Distillation/Titration (9030B/9034)	X	X	X
Total Kjeldahl Nitrogen (EPA 351.2)	X	X	X
Total Organic Carbon (415.1)	X	-	X
Total Organic Carbon Lloyd Kahn	-	X	-
Volatiles - ITM list (SW846 8260B)	X	X	X

Table 3-2. Marine Sediment Quality Guidelines (SQGs).

Chemical Name	Units	Threshold Effects Level (TEL)	Probable Effects Level (PEL)
METALS			
ARSENIC	mg/kg	7.24	41.6
CADMIUM	mg/kg	0.676	4.21
CHROMIUM	mg/kg	52.3	160.4
COPPER	mg/kg	18.7	108.2
LEAD	mg/kg	30.24	112.18
MERCURY	mg/kg	0.13	0.696
NICKEL	mg/kg	15.9	42.8
SILVER	mg/kg	0.73	1.77
ZINC	mg/kg	124	271
CHLORINATED PESTICIDES			
CHLORDANE	µg/kg	2.26	4.79
4,4-DDD	µg/kg	1.22	7.81
4,4-DDE	µg/kg	2.07	374.17
4,4-DDT	µg/kg	1.19	4.77
DIELDRIN	µg/kg	0.715	4.3
GAMMA-BHC	µg/kg	0.32	0.99
PAHs			
2-METHYLNAPHTHALENE	µg/kg	20.21	201.28
ACENAPHTHENE	µg/kg	6.71	88.9
ACENAPHTHYLENE	µg/kg	5.87	127.87
ANTHRACENE	µg/kg	46.85	245
BENZO(A)PYRENE	µg/kg	88.81	763.22
BENZ(A)ANTHRACENE	µg/kg	74.83	692.53
CHRYSENE	µg/kg	107.77	845.98
DIBENZ(A,H)ANTHRACENE	µg/kg	6.22	134.61
FLUORANTHENE	µg/kg	112.82	1,493.54
FLUORENE	µg/kg	21.17	144.35
NAPHTHALENE	µg/kg	34.57	390.64
PHENANTHRENE	µg/kg	86.68	543.53
PYRENE	µg/kg	152.66	1,397.6
PAHs, TOTAL	µg/kg	1,684.06	16,770.4
PCBs			
PCBs, TOTAL	µg/kg	21.55	188.79
SEMIVOLATILE ORGANIC COMPOUNDS			
BIS(2-ETHYLHEXYL)PHTHALATE	µg/kg	182.16	2,646.51

Source: MacDonald et al. 1996. Ecotoxicology 5: 253-278.

4. SEDIMENT, SITE WATER, AND STANDARD ELUTRIATE RESULTS

The physical and chemical characteristics of five composite sediment samples from the deep sand/gravel layer at the Seagirt Marine Terminal Access channel were determined to assess the sediment quality of the material proposed for use as borrow material to construct the containment dikes at the Masonville DMCF. This chapter presents the results of the bulk sediment, site water, and standard elutriate chemical analyses, comparisons of chemical constituents detected in the bulk sediment to sediment quality guidelines, and comparisons of chemical constituents detected in the site water and standard elutriate to USEPA and State of Maryland acute and chronic water quality criteria.

Results of the sediment analyses of the Seagirt dredging area samples are shown in Tables 4-1 through 4-12. Results of the standard elutriate testing and site water analyses are shown in Tables 4-13 through 4-24. Definitions of organic, inorganic, and dioxin and furan data qualifiers are presented on the data result tables. Values for detected chemical constituents are shaded and bolded in the data tables. MDLs/RLs are presented for non-detected chemical constituents.

4.1 BULK SEDIMENT RESULTS

Sample weights were adjusted for percent moisture (up to 50 percent moisture) prior to analysis to achieve the lowest possible detection limits. Analytical results are reported on a dry weight basis. Copies of final raw data sheets (Form I's) and analytical narratives that include an evaluation of laboratory quality assurance/quality control results are available from EA Engineering, Science, and Technology upon request.

4.1.1 Physical Analyses

Results of physical analyses for sediment samples are shown in Table 4-1. Four of the five sediment samples (EA-03/04, EA-05/06, EA-07/08, EA-09/10) were comprised primarily of sand and gravel, ranging from 79.2 to 92.3 percent (Table 4-1). One composite sample (EA-01/02) had a substantial portion of fine-grained silts and clays (42.2 percent). Initially, two basic areas were identified for borrow: one in which samples 01/02 were taken and a larger one, which encompassed 03 through 10. Based on the geotechnical evaluation, it was determined that location 02, which is located near the edge of the smaller proposed Seagirt borrow area, had a greater fines content than location 01. All of the samples were non-plastic.

4.1.2 General Chemistry Analyses

Concentrations of detected nutrients and general chemistry parameters were generally low (Table 4-2), mostly likely because of the high sand and gravel content of the sediments. Total organic carbon (TOC) concentrations were also low, ranging from non-detects at locations EA-05/06 and EA-09/10 to 1.65 percent at location EA-01/02. Ammonia concentrations ranged from 11.6 (EA-05/06) to 39.7 mg/kg (EA-01/02). Total phosphorus concentrations ranged from 63.2 (EA-05/06) to 127 mg/kg (EA-01/02). Total Kjeldahl nitrogen (TKN) detected concentrations ranged from 264 (EA-07/08) to 732 (EA-mg/kg (EA-01/02); TKN was not detected in one sample (EA-05/06). Chemical oxygen demand ranged from 332 (EA-07/08) to 2,290 mg/kg (EA-01/02) and was not detected in sample EA-09/10. Total sulfide concentrations ranged from 20 (EA-07/08) to 31.7 mg/kg (EA-09/10); total sulfide was not detected in

samples EA-01/02, EA-03/04, and EA-05/06. Sediment pH ranged from 5.7 (EA-01/02) to 7.6 (EA-09/10). Biochemical oxygen demand was detected in one sample at a concentration of 944 mg/kg (EA-01/02). Cyanide and nitrate-nitrite were not detected at any of the sample locations.

4.1.3 Metals

The majority of the tested metals were detected in the proposed borrow material samples, but the metals were generally detected at low concentrations (generally below sediment quality guidelines) (Table 4-3). Hexavalent chromium was not detected in any of the proposed borrow material samples. Most of the metals (16 of 19) were detected in each of the tested samples. Only two metals, chromium and copper, were detected at concentrations that exceeded TEL values. Concentrations of both chromium and copper exceeded the TEL in the sediment sample from location EA-01/02, which is the sample with the greatest proportion of fine-grained sediments (Table 4-1). For location EA-01/02, the detected chromium concentration was 55 mg/kg, which exceeded the TEL value (52.3mg/kg) by a factor of 1.05. The detected copper concentration was 37.6 mg/kg, which exceeded the TEL value (18.7mg/kg) by a factor of approximately 2. None of the detected metal concentrations exceeded PEL values.

The SEM/AVS ratio was less than one at each location (Table 4-3). An SEM/AVS ratio less than 1 indicates a high degree of probability that the metals are bound to organic material and not bioavailable to aquatic organisms. If the SEM/AVS is greater than one, then the metals in sediment exceed the sulfide binding ability and have a higher probability of being bioavailable to aquatic organisms. Because the SEM/AVS ratio for proposed borrow material is less than one, the five simultaneously-extracted metals included in the analysis (cadmium, copper, lead, nickel, and zinc) would not be expected to be bioavailable to aquatic organisms.

4.1.4 PCB Congeners and Aroclors

PCB congeners were detected infrequently and at low concentrations in the proposed borrow material samples (Table 4-4). PCB Aroclors were not detected in any of the proposed borrow material samples (Table 4-5). Total PCB concentrations (ND = ½ MDL) were low, ranging from 3.17 to 4.96 µg/kg, well below the TEL value of 21.55 µg/kg (Table 4-4).

4.1.5 Polynuclear Aromatic Hydrocarbons (PAHs)

Of the 18 tested PAHs, five were detected at low concentrations in the proposed borrow material samples: pyrene, benzo(ghi)perylene, fluoranthene, indeno(1,2,3-CD)pyrene, and phenanthrene (Table 4-6). Total PAH concentrations (ND = ½ MDL) were low, ranging from 56.1 to 114.3 g/kg, well below the TEL value of 1,684.06 µg/kg (Table 4-6). None of the PAH or total PAH concentrations exceeded the TEL values.

4.1.6 Chlorinated and Organophosphorus Pesticides

None of the tested chlorinated pesticides or organophosphorus pesticides were detected in the proposed borrow material samples (Tables 4-7 and 4-8).

4.1.7 Dioxin and Furan Congeners

Of the 17 tested dioxin and furan congeners, seven were detected at low concentrations in the proposed borrow material samples (Table 4-9). The most toxic dioxin congener, 2,3,7,8-TCDD, was not detected in any of the samples. Dioxin TEQs (ND = 1/2 RL) ranged from 5.64 to 6.23 pg/g (Table 4-9). There are no TEL or PEL values for dioxin and furan congeners.

4.1.8 Butyltins, Semivolatile Organic Compounds (SVOCs), and Volatile Organic Compounds (VOCs)

None of the tested butyltins (Table 4-10) or SVOCs (Table 4-11) were detected in the proposed borrow material samples. Only one VOC, methylene chloride, was detected in the proposed borrow material samples (Table 4-12). In four of the five samples (EA-01/02 excluded), methylene chloride was also detected in the method blank. Methylene chloride is a common laboratory contaminant and may have been added to the sample as a result of lab activities.

4.1.9 Bulk Sediment Results Summary

With the exception of the materials at Station 01/02, the Seagirt material proposed for borrow was generally less than 20 percent fines. The fines content of Station 01/02 was not necessarily reflective of the material throughout the entire area in that previous studies found significant amounts of sand/gravel near the Station 01, indicating that the Station 02 location was likely driving up the fines content of the composite sample. In general, the detected contaminant concentrations in the bulk sediments met sediment quality guidelines (where available), with the exception of copper and chromium at one location.

4.2 SITE WATER AND STANDARD ELUTRIATE RESULTS

For the proposed borrow material samples, five standard elutriates were prepared according to *ITM* guidelines to evaluate open water placement of the dredged material. Standard elutriates were created using five sediment samples and the site water collected from location SGT06-SW, according to the table below:

Sediment Sample ID		Elutriate Preparation Water ID		Standard Elutriate ID
EA-01/02	+	SGT06-SW	=	EA-01/02-SET
EA-03/04	+	SGT06-SW	=	EA-03/04-SET
EA-05/06	+	SGT06-SW	=	EA-05/06-SET
EA-07/08	+	SGT06-SW	=	EA-07/08-SET
EA-09/10	+	SGT06-SW	=	EA-09/10-SET

Chemical analyses for target analytes were conducted for each of the five standard elutriates and the site water used to prepare the elutriates. Analytical results from the site water and standard elutriate chemical analyses, and a comparison of the analytical results to USEPA and State of Maryland acute

and chronic saltwater quality criteria for the protection of aquatic life are presented in following sections and Tables 4-13 to 4-24. Values for detected constituents are shaded and bold in the data tables. Detection limits are presented for non-detected chemical constituents.

4.2.1 General Chemistry Analyses

Concentrations of detected nutrients and general chemistry parameters in the standard elutriates were generally low (for most compounds) and below the detected concentrations in the site water used to prepare the elutriates (Table 4-13). In the standard elutriates, concentrations of nitrate-nitrite ranged from 0.012 to 0.13 mg/L, TKN concentrations ranged from non-detect to 9 mg/L, TOC ranged from 0.92 to 1.5 mg/L, and total phosphorus ranged from 0.063 to 0.18 mg/L (Table 4-13). Elutriate ammonia concentrations ranged from 0.72 to 4.8 mg/L and were elevated relative to ammonia concentration in the site water used to prepare the elutriates (0.08 mg/L). However, the measured elutriate concentrations meet the acute and chronic criteria for ammonia, based on the average water quality conditions at the Masonville site (Section 3.4).

4.2.2 Metals

Sixteen of the 19 metals analyzed were detected in the site water samples. Seventeen of the 19 metals analyzed were detected in one or more of the standard elutriate samples (Table 4-14), generally at low concentrations below the USEPA and State of Maryland acute and chronic criteria for the protection of aquatic life. Concentrations of copper, nickel and zinc at some locations exceeded the USEPA and State of Maryland acute and/or chronic criteria (Table 4-14). With the exception of arsenic and manganese, metal concentrations detected in the standard elutriates were comparable to, or lower than, concentrations detected in the site water used to prepare the elutriates, indicating that metals will mostly likely not be released during open water placement.

For the site water used to prepare the standard elutriates, two metals – copper and lead – had concentrations that exceeded the USEPA and State of Maryland chronic and/or acute water quality criteria for aquatic life. The copper concentration (15.6 µg/L) exceeded both the USEPA acute (4.8 µg/L) and chronic (3.1 µg/L) criteria and the State of Maryland estuarine criterion (6.1 µg/L). The lead concentration (8.6 µg/L) detected in the site water slightly exceeded the USEPA chronic criterion (8.1 µg/L).

For the standard elutriates created from the proposed borrow material samples, two metals, copper and nickel, exceeded the USEPA and State of Maryland chronic water quality criteria for aquatic life. Both the copper and nickel concentrations exceeded USEPA chronic criteria in the standard elutriate for location EA-01/02. Copper concentrations also exceeded USEPA chronic criteria for the standard elutriate for location EA-03/04 (Table 4-14). Detected copper concentrations (4.3 and 4.5 µg/L) exceeded only the USEPA chronic (3.1 µg/L) criterion. The detected nickel concentration (51.6 µg/L) exceeded only the USEPA chronic criterion (8.2 µg/L).

The nickel concentration in the standard elutriate from location EA-01/02 was 51.6 µg/L, much higher than concentrations detected in the site water and for standard elutriates created for the other proposed borrow material samples. Therefore, the standard elutriate from EA-01/02 was re-analyzed to determine if the value was anomalously high. The result from the nickel reanalysis was 44.9 µg/L, which was still

elevated compared to results from the other borrow material standard elutriates, but lower than the initial value. The results of the initial analysis are presented in Table 4-14.

Evaluation of the standard elutriate results for the metals raised additional questions about the detected concentrations. Therefore, a second site water sample (SGT06-SW-RS) was collected from the Seagirt dredging area on 30 August 2006 and analyzed. A comparison of the results of this site water sample (SGT06-SW-RS) analysis and those of the original site water sample (SGT06-SW) is presented in Appendix C. Concentrations of metals in the second site water sample were similar to or lower than the concentrations detected in the original site water sample.

In addition, the standard elutriates were re-created, using the original sediment collected from the site and the new site water sample. For this second round of standard elutriate testing, only metals were analyzed because concentrations of organic constituents in the initial elutriate testing were low. A comparison of the results of first and second rounds of standard elutriate testing are presented in Table 4-15.

Even though the second site water sample generally had lower metal concentrations compared to initial site water sample (Table 4-15), in the second round of standard elutriate testing metals concentrations were generally higher than the initial set of standard elutriates (Table 4-15).

For the second round of standard elutriate testing, nickel concentrations at EA-01/02. EA-03/04. and EA-05/06, copper concentrations at location EA-05/06, and zinc concentrations at location EA-01/02 each exceeded the USEPA and State of Maryland chronic and/or acute water quality criteria for aquatic life. The copper concentration at location EA-01/02 (4.3 µg/L) exceeded the USEPA chronic criterion (3.1 µg/L), and the nickel concentrations at locations EA-03/04 (31.7 µg/L) and EA-05/06 (20.9 µg/L) each exceeded the USPEA chronic criterion (8.2 µg/L).

At location EA-01/02, the nickel and zinc concentrations each exceeded their respective USEPA acute and chronic criteria (Table 4-15). The nickel concentration exceeded the USEPA acute criterion (74 µg/L) by a factor of 2.8, and the zinc concentration exceeded the USEPA acute criterion (90 µg/L) by a factor of 9.3.

4.2.3 PCB Congeners and Aroclors

PCB congeners were detected infrequently and at low concentrations in both the site water and the standard elutriates for the proposed borrow material samples (Table 4-16), and PCB Aroclors were not detected in either the site water or the standard elutriates for the proposed borrow material samples (Table 4-17). Total PCB concentrations (ND = ½ MDL) in the standard elutriates ranged from 17.12 to 17.64 ng/L, below the concentration detected in the site water sample (19.51 ng/L) (Table 4-16). Total PCB concentrations in both the site water and the standard elutriates were well below the USEPA chronic criterion (30 ng/L) for the protection of aquatic life.

4.2.4 Polynuclear Aromatic Hydrocarbons

PAHs were also detected infrequently and at low concentrations below the laboratory reporting limit in both the site water and the standard elutriates for the proposed borrow material samples (Table 4-18).

Total PAH concentrations (ND = ½ MDL) in the standard elutriates ranged from 1.77 to 1.94 µg/L, just slightly above the concentration detected in the site water sample (1.58 ng/L) (Table 4-18). There are no USEPA acute or chronic criteria for the protection of aquatic life for either the tested PAHs or total PAHs.

4.2.5 Chlorinated and Organophosphorus Pesticides

Results of the chlorinated pesticide analyses indicated that only one of the tested chlorinated pesticides, alpha-BHC, was detected in the standard elutriates for the proposed borrow material (Table 4-19). Alpha-BHC was detected at only one location, EA-03/04, at a low concentration below the laboratory reporting limit. None of the tested chlorinated pesticides were detected in the site water sample used to create the standard elutriate, and none of the tested organophosphorus pesticides were detected in either site water or elutriate samples (Table 4-20).

4.2.6 Dioxins and Furan Congeners

Thirteen of the 17 dioxin and furans analyzed were detected at low concentrations in the site water sample (Table 4-21), and the dioxin TEQ (ND = ½ RL) for the site water sample was 36.7 pg/L (parts per quadrillion). For the standard elutriate samples, four of the 17 tested dioxin and furan congeners were detected, and the dioxin TEQs (ND = ½ RL) for the standard elutriate samples ranged from 61.1 to 62.5 pg/L. The most toxic dioxin congener, 2,3,7,8-TCDD, was not detected in either the site water or standard elutriate samples for the proposed borrow material. There are no USEPA acute or chronic criteria for the protection of aquatic life for dioxin and furan congeners.

4.2.7 Butyltins, Semivolatile Organic Compounds (SVOCs), Volatile Organic Compounds (VOCs)

Only one butyltin (dibutyltin) was detected at low concentrations in the site water sample, and none of the tested butyltins were detected in the standard elutriate samples (Table 4-22). For the SVOCs, only one, bis(2-ethylhexyl)phthalate, was detected. Bis(2-ethylhexyl)phthalate was detected at a low concentration below the laboratory reporting limit in both the site water and the standard elutriate samples (Table 4-23). There is no USEPA acute or chronic criteria for the protection of aquatic life for bis(2-ethylhexyl)phthalate.

None of the tested VOCs were detected in the site water sample, but a total of four VOCs (2-butanone, methylene chloride, tetrachloroethene, and toluene) were each detected at low concentrations in at least one standard elutriate for the proposed borrow material samples (Table 4-24). There are no USEPA acute or chronic criteria for the protection of aquatic life for VOCs.

4.2.8 Site Water and Standard Elutriate Chemistry Results

Standard elutriate testing of the Seagirt sand and gravel resulted in very low levels of most contaminants being released from the sediments and detected in the elutriates at most locations. Although some nutrients were released, all elutriate concentrations met acute and chronic surface water criteria (where they exist).. Organic compound concentrations were generally low in all elutriate samples. Station

01/02 was the only location where metals concentrations were significantly elevated relative to the site water controls.

TABLE 4-1. PHYSICAL PARAMETERS OF PROPOSED BORROW MATERIAL
SEAGIRT MARINE TERMINAL, BALTIMORE HARBOR, MARYLAND (JUNE 2006)

ANALYTE	UNITS	EA-01/02	EA-03/04	EA-05/06	EA-07/08	EA-09/10
GRAVEL	%	0.3	45.5	53.6	29.4	16.4
SAND	%	57.2	45	38.6	49.7	70.7
SILT	%	26	4.7	3.2	10.9	6
CLAY	%	16.4	4.8	4.5	9.9	7
SILTCLAY	%	42.4	9.5	7.7	20.8	13
LIQUID LIMIT	--	0	0	0	0	0
PERCENT SOLIDS	%	70	90.3	84.5	79.9	75.8
PLASTIC LIMIT	--	0	0	0	0	0
PLASTICITY INDEX	--	0	0	0	0	0
SPECIFIC GRAVITY	--	2.75	2.706	2.703	2.705	2.697

TABLE 4-2. GENERAL CHEMISTRY CONCENTRATIONS OF PROPOSED BORROW MATERIAL
SEAGIRT MARINE TERMINAL, BALTIMORE HARBOR, MARYLAND (JUNE 2006)

ANALYTE	UNITS	RL	EA-01/02	EA-03/04	EA-05/06	EA-07/08	EA-09/10
AMMONIA AS NITROGEN	MG/KG	3.06	**39.7**	**13.7**	**11.6**	**21.2**	**15**
BIOCHEMICAL OXYGEN DEMAND	MG/KG	150.8	**944**	133 U	142 U	150 U	158 U
CHEMICAL OXYGEN DEMAND	MG/KG	120.8	**2290**	**1630**	**344**	**332**	127 U
CYANIDE, TOTAL	MG/KG	0.274	0.31 U	0.24 U	0.26 U	0.27 U	0.29 U
NITRATE-NITRITE	MG/KG	0.126	0.14 U	0.11 U	0.12 U	0.13 U	0.13 U
PH	NO UNITS	0.1	5.7	7.2	6.8	6.6	7.6
TOTAL KJELDAHL NITROGEN	MG/KG	60.36	**732**	**434**	56.8 U	**264**	**358**
TOTAL ORGANIC CARBON	MG/KG	639.2	**16500**	**1040**	614 U	**2100**	693 U
TOTAL PHOSPHORUS	MG/KG	5.8	**127 J**	**74.5 J**	**63.2 J**	**103 J**	**80.7 J**
TOTAL SULFIDE	MG/KG	15.44	17.5 U	13.6 U	14.5 U	**20 B**	**31.7 B**

NOTE: Shaded and bold values represent detected concentrations.

RL = average reporting limit
B (inorganic) = compound was detected, but below reporting limit (value is estimated)
J (inorganic) = compound was detected in method blank
U = compound was analyzed but not detected

TABLE 4-3. METAL CONCENTRATIONS (MG/KG) IN PROPOSED BORROW MATERIAL
SEAGIRT MARINE TERMINAL, BALTIMORE HARBOR, MARYLAND (JUNE 2006)

ANALYTE	UNITS	MDL	TEL*	PEL*	EA-01/02	EA-03/04	EA-05/06	EA-07/08	EA-09/10
ALUMINUM	MG/KG	0.448	--	--	**10300**	**1090**	**1210**	**2760**	**2260**
ANTIMONY	MG/KG	0.00748	--	--	**0.019 B**	**0.017 B**	**0.022 B**	**0.019 B**	**0.029 B**
ARSENIC	MG/KG	0.012	7.24	41.6	**1.9**	**1.1**	**0.44**	**1.7**	**1.2**
BERYLLIUM	MG/KG	0.00658	--	--	**0.33**	**0.12**	**0.055 B**	**0.25**	**0.32**
CADMIUM	MG/KG	0.00738	0.676	4.21	**0.21**	**0.02 B**	**0.018 B**	**0.067 B**	**0.046 B**
CHROMIUM, TOTAL	MG/KG	0.027	52.3	160.4	**55**	**7**	**10.7**	**13.9**	**11.8**
CHROMIUM, HEXAVALENT	MG/KG	0.0906	--	--	0.1 U	0.08 U	0.086 U	0.091 U	0.096 U
COBALT	MG/KG	0.0032	--	--	**2.9**	**2.4**	**0.97**	**3.3**	**2.1**
COPPER	MG/KG	0.00828	18.7	108.2	**37.6 E**	**3**	**3.6**	**7.1**	**6**
IRON	MG/KG	0.618	--	--	**12800 E**	**4240**	**3530**	**7860**	**5120**
LEAD	MG/KG	0.0026	30.24	112.18	**7**	**1.3**	**1.4**	**3.7**	**3.1**
MANGANESE	MG/KG	0.00838	--	--	**44.6**	**26.7**	**25.1**	**96.2**	**23.5**
MERCURY	MG/KG	0.01008	0.13	0.696	**0.018 B**	**0.01 B**	0.0095 U	**0.013 B**	0.011 U
NICKEL	MG/KG	0.02	15.9	42.8	**6.6 E**	**2.7**	**2.1**	**4.4**	**3.8**
SELENIUM	MG/KG	0.019	--	--	**0.48 B**	**0.12 B**	**0.1 B**	**0.29 B**	**0.27 B**
SILVER	MG/KG	0.0308	0.73	1.77	0.031 U	0.031 U	0.031 U	**0.039 B**	0.03 U
THALLIUM	MG/KG	0.00578	--	--	**0.15**	**0.027 B**	**0.02 B**	**0.055 B**	**0.045 B**
TIN	MG/KG	0.095	--	--	**6 J**	**3.3 J**	**2.7 J**	**2.7 J**	**2.5 J**
ZINC	MG/KG	0.0748	124	271	**17.9 E**	**5.8**	**4.1**	**11.9**	**10.1**
AVS/SEM	--	--	--	--	**0.474**	**0.313**	**0.1**	**0.091**	**0.216**

**Source:* MacDonald et al. 1996 Ecotoxicology 5: 253-278

NOTE: Shaded and bold values represent detected concentrations; cells shaded green exceed the TEL.
MDL = average method detection limit
TEL = threshold effects level
PEL = probable effects level

B (inorganic) = compound was detected, but below reporting limit (value is estimated)
E = reported value is estimated because of the presence of interference
J (inorganic) = compound was detected in method blank
U = compound was analyzed but not detected

TABLE 4-4. PCB CONGENER CONCENTRATIONS (UG/KG) IN PROPOSED BORROW MATERIAL
SEAGIRT MARINE TERMINAL, BALTIMORE HARBOR, MARYLAND (JUNE 2006)

ANALYTE	UNITS	MDL	TEL**	PEL**	EA-01/02	EA-03/04	EA-05/06	EA-07/08	EA-09/10
PCB 8 (BZ)*	UG/KG	0.0436	--	--	**0.064 J PG**	**0.07 J PG**	**0.096 J PG**	**0.11 J PG**	**0.074 J PG**
PCB 18 (BZ)*	UG/KG	0.0288	--	--	**0.15 J**	**0.049 J PG**	**0.072 J**	**0.11 J**	0.03 U
PCB 28 (BZ)*	UG/KG	0.047	--	--	0.054 U	0.041 U	0.044 U	0.047 U	0.049 U
PCB 44 (BZ)*	UG/KG	0.0432	--	--	0.049 U	0.038 U	**0.49 PG**	0.043 U	0.045 U
PCB 49 (BZ)	UG/KG	0.0444	--	--	0.05 U	0.039 U	0.042 U	0.044 U	0.047 U
PCB 52 (BZ)*	UG/KG	0.0418	--	--	0.047 U	0.037 U	**0.39**	0.042 U	0.044 U
PCB 66 (BZ)*	UG/KG	0.0342	--	--	**0.041 J PG**	**0.074 J**	**0.13 J**	**0.051 J**	0.036 U
PCB 77 (BZ)*	UG/KG	0.0458	--	--	0.052 U	0.04 U	0.043 U	0.046 U	0.048 U
PCB 87 (BZ)	UG/KG	0.0394	--	--	0.045 U	0.035 U	0.037 U	0.039 U	0.041 U
PCB 101 (BZ)*	UG/KG	0.0422	--	--	0.048 U	0.037 U	0.04 U	0.042 U	0.044 U
PCB 105 (BZ)*	UG/KG	0.044	--	--	0.05 U	0.039 U	0.041 U	0.044 U	0.046 U
PCB 118 (BZ)*	UG/KG	0.043	--	--	**0.14 J PG**	**0.062 J**	**0.1 J**	0.043 U	0.045 U
PCB 126 (BZ)*	UG/KG	0.0554	--	--	0.063 U	0.049 U	0.052 U	0.055 U	0.058 U
PCB 128 (BZ)*	UG/KG	0.0432	--	--	0.049 U	0.038 U	0.041 U	0.043 U	0.045 U
PCB 138 (BZ)*	UG/KG	0.045	--	--	0.051 U	0.04 U	0.042 U	0.045 U	0.047 U
PCB 153 (BZ)*	UG/KG	0.0438	--	--	0.05 U	0.038 U	0.041 U	0.044 U	0.046 U
PCB 156 (BZ)	UG/KG	0.0426	--	--	0.048 U	0.038 U	0.04 U	0.042 U	0.045 U
PCB 169 (BZ)*	UG/KG	0.0412	--	--	0.047 U	0.036 U	0.039 U	0.041 U	0.043 U
PCB 170 (BZ)*	UG/KG	0.0432	--	--	0.049 U	0.038 U	0.041 U	0.043 U	0.045 U
PCB 180 (BZ)*	UG/KG	0.043	--	--	0.049 U	0.038 U	0.04 U	0.043 U	0.045 U
PCB 183 (BZ)	UG/KG	0.042	--	--	0.048 U	0.037 U	0.039 U	0.042 U	0.044 U
PCB 184 (BZ)	UG/KG	0.0362	--	--	0.041 U	0.032 U	0.034 U	0.036 U	0.038 U
PCB 187 (BZ)*	UG/KG	0.0446	--	--	0.051 U	0.039 U	0.042 U	0.044 U	0.047 U
PCB 195 (BZ)	UG/KG	0.0424	--	--	0.048 U	0.037 U	0.04 U	0.042 U	0.045 U
PCB 206 (BZ)	UG/KG	0.0422	--	--	0.048 U	0.037 U	0.04 U	0.042 U	0.044 U
PCB 209 (BZ)	UG/KG	0.045	--	--	0.051 U	0.04 U	0.042 U	0.045 U	0.047 U
TOTAL PCBs (ND=0)	UG/KG	--	21.55	188.79	**0.79**	**0.51**	**2.556**	**0.542**	**0.148**
TOTAL PCBs (ND=1/2MDL)	UG/KG	--	21.55	188.79	**4.15**	**3.17**	**4.956**	**3.692**	**3.888**

* PCB Congeners used for Total PCB Summation, as per Table 9-3 of the ITM (USEPA/USACE 1998)

***Source* : MacDonald et al. 1996. Ecotoxicology 5: 253-278

NOTE: Shaded and bold values represent detected concentrations.

MDL = average method detection limit

TEL = threshold effects level

PEL = probable effects level

J = compound was detected, but below the reporting limit (value is estimated)

PG = the percent difference between the original and confirmation analysis is greater than 40%

U = compound was analysed but not detected

TABLE 4-5. PCB AROCLOR CONCENTRATIONS (UG/KG) IN PROPOSED BORROW MATERIAL
SEAGIRT MARINE TERMINAL, BALTIMORE HARBOR, MARYLAND (JUNE 2006)

			EA-01/02	EA-03/04	EA-05/06	EA-07/08	EA-09/10
ANALYTE	**UNITS**	**MDL**					
AROCLOR 1016	UG/KG	26.4	26 U	26 U	27 U	27 U	26 U
AROCLOR 1221	UG/KG	13	13 U	13 U	13 U	13 U	13 U
AROCLOR 1232	UG/KG	16	16 U	16 U	16 U	16 U	16 U
AROCLOR 1242	UG/KG	11	11 U	11 U	11 U	11 U	11 U
AROCLOR 1248	UG/KG	12	12 U	12 U	12 U	12 U	12 U
AROCLOR 1254	UG/KG	4.4	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U
AROCLOR 1260	UG/KG	3.68	3.7 U	3.7 U	3.7 U	3.7 U	3.6 U

There are no TEL and PEL valuees for PCB Aroclors

NOTE: Shaded and bold values represent detected concentrations.

MDL = average method detection limit

U = compound was analyzed but not detected

TABLE 4-6. PAH CONCENTRATIONS (UG/KG) IN PROPOSED BORROW MATERIAL
SEAGIRT MARINE TERMINAL, BALTIMORE HARBOR, MARYLAND (JUNE 2006)

ANALYTE	UNITS	MDL	TEL*	PEL*	EA-01/02	EA-03/04	EA-05/06	EA-07/08	EA-09/10
1-METHYLNAPHTHALENE	UG/KG	2.42	--	--	4.1 U	2 U	2 U	2 U	2 U
2-METHYLNAPHTHALENE	UG/KG	2.76	20.21	201.28	4.6 U	2.3 U	2.3 U	2.3 U	2.3 U
ACENAPHTHENE	UG/KG	2.52	6.71	88.9	4.2 U	2.1 U	2.1 U	2.1 U	2.1 U
ACENAPHTHYLENE	UG/KG	2.52	5.87	127.87	4.2 U	2.1 U	2.1 U	2.1 U	2.1 U
ANTHRACENE	UG/KG	2.04	46.85	245	3.4 U	1.7 U	1.7 U	1.7 U	1.7 U
BENZO(A)ANTHRACENE	UG/KG	1.9	74.83	692.53	3.1 U	1.6 U	1.6 U	1.6 U	1.6 U
BENZO(A)PYRENE	UG/KG	2.52	88.81	763.22	4.2 U	2.1 U	2.1 U	2.1 U	2.1 U
BENZO(B)FLUORANTHENE	UG/KG	1.42	--	--	2.3 U	1.2 U	1.2 U	1.2 U	1.2 U
BENZO(GHI)PERYLENE	UG/KG	1.46	--	--	2.5 U	**2.7 J**	1.2 U	**1.3 J**	1.2 U
BENZO(K)FLUORANTHENE	UG/KG	2.84	--	--	4.7 U	2.4 U	2.4 U	2.4 U	2.3 U
CHRYSENE	UG/KG	1.68	107.77	845.98	2.8 U	1.4 U	1.4 U	1.4 U	1.4 U
DIBENZO(A,H)ANTHRACENE	UG/KG	1.68	6.22	134.61	2.8 U	1.4 U	1.4 U	1.4 U	1.4 U
FLUORANTHENE	UG/KG	2.68	112.82	1493.54	4.5 U	**2.2 J**	2.3 U	2.2 U	2.2 U
FLUORENE	UG/KG	2.68	21.17	144.35	4.5 U	2.2 U	2.3 U	2.2 U	2.2 U
INDENO(1,2,3-CD)PYRENE	UG/KG	1.62	--	--	2.7 U	**1.3 J**	1.4 U	1.4 U	1.3 U
NAPHTHALENE	UG/KG	2.82	34.57	390.64	4.7 U	2.3 U	2.4 U	2.4 U	2.3 U
PHENANTHRENE	UG/KG	2.16	86.68	543.53	**3.8 J**	**5 J**	**4.4 J**	**5.4 J**	**5.1 J**
PYRENE	UG/KG	1.56	152.66	1397.6	2.6 U	**2 J**	1.3 U	**2.5 J**	1.3 U
TOTAL PAHs (ND=0)	UG/KG	--	1,684.06	16,770.40	**3.8**	**13.2**	**4.4**	**9.2**	**5.1**
TOTAL PAHs (ND=1/2MDL)	UG/KG	--	1,684.06	16,770.40	**114.3**	**56.1**	**61.35**	**59.45**	**61.2**

**Source:* MacDonald et al. 1996 Ecotoxicology 5: 253-278

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
TEL = threshold effects level
PEL = probable effects level
J = compound was detected, but below the reporting limit (value is estimated)
U = compound was analyzed but not detected

TABLE 4-7. CHLORINATED PESTICIDE CONCENTRATIONS (UG/KG) IN PROPOSED BORROW MATERIAL
SEAGIRT MARINE TERMINAL, BALTIMORE HARBOR, MARYLAND (JUNE 2006)

ANALYTE	UNITS	MDL	TEL*	PEL*	EA-01/02	EA-03/04	EA-05/06	EA-07/08	EA-09/10
4,4'-DDD	UG/KG	0.160	1.22	7.81	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
4,4'-DDE	UG/KG	0.210	2.07	374.17	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
4,4'-DDT	UG/KG	0.180	1.19	4.77	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
ALDRIN	UG/KG	0.210	--	--	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
ALPHA-BHC	UG/KG	0.140	--	--	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
BETA-BHC	UG/KG	0.220	--	--	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
CHLORDANE (TECHNICAL)	UG/KG	0.776	2.26	4.79	0.78 U	0.77 U	0.78 U	0.78 U	0.77 U
CHLOROBENSIDE	UG/KG	0.688	--	--	0.69 U	0.69 U	0.69 U	0.69 U	0.68 U
DCPA	UG/KG	0.450	--	--	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U
DELTA-BHC	UG/KG	0.180	--	--	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
DIELDRIN	UG/KG	0.160	0.715	4.3	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
ENDOSULFAN I	UG/KG	0.160	--	--	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
ENDOSULFAN II	UG/KG	0.260	--	--	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
ENDOSULFAN SULFATE	UG/KG	0.230	--	--	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
ENDRIN	UG/KG	0.168	--	--	0.17 U	0.17 U	0.17 U	0.17 U	0.16 U
ENDRIN ALDEHYDE	UG/KG	0.360	--	--	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
GAMMA-BHC (LINDANE)	UG/KG	0.140	0.32	0.99	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
HEPTACHLOR	UG/KG	0.160	--	--	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
HEPTACHLOR EPOXIDE	UG/KG	0.200	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
METHOXYCHLOR	UG/KG	0.368	--	--	0.37 U	0.37 U	0.37 U	0.37 U	0.36 U
MIREX	UG/KG	0.230	--	--	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
TOXAPHENE	UG/KG	2.28	--	--	2.3 U	2.3 U	2.3 U	2.3 U	2.2 U

**Source:* MacDonald et al. 1996 Ecotoxicology 5: 253-278

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
TEL = threshold effects level
PEL = probable effects level
U = compound was analyzed but not detected

TABLE 4-8. ORGANOPHOSPHOROUS PESTICIDE CONCENTRATIONS (UG/KG) IN PROPOSED BORROW MATERIAL

SEAGIRT MARINE TERMINAL, BALTIMORE HARBOR, MARYLAND (JUNE 2006)

			EA-01/02	EA-03/04	EA-05/06	EA-07/08	EA-09/10
ANALYTE	**UNITS**	**MDL**					
AZINPHOS-METHYL	UG/KG	8.36	8.4 U	8.3 U	8.4 U	8.4 U	8.3 U
DEMETON (TOTAL)	UG/KG	16	16 U	16 U	16 U	16 U	16 U
MALATHION	UG/KG	5.8	5.8 U	5.8 U	5.8 U	5.8 U	5.8 U
METHYL PARATHION	UG/KG	5.92	5.9 U	5.9 U	6 U	5.9 U	5.9 U
PARATHION	UG/KG	7.18	7.2 U	7.2 U	7.2 U	7.2 U	7.1 U

There are no TEL and PEL values for organophosphorus pesticides.

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
U = compound was analyzed but not detected

TABLE 4-9. DIOXIN AND FURAN CONGENER CONCENTRATIONS (PG/G) IN PROPOSED BORROW MATERIAL

SEAGIRT MARINE TERMINAL, BALTIMORE HARBOR, MARYLAND (JUNE 2006)

ANALYTE	UNITS	RL	TEF*	EA-01/02	EA-03/04	EA-05/06	EA-07/08	EA-09/10
2,3,7,8-TCDD	PG/G	1	1	1 U	1 U	1 U	1 U	1 U
1,2,3,7,8-PECDD	PG/G	5	1	5 U	5 U	5 U	5 U	5 U
1,2,3,4,7,8-HXCDD	PG/G	5	0.1	5 U	5 U	5 U	5 U	**0.15 Q J**
1,2,3,6,7,8-HXCDD	PG/G	5	0.1	5 U	**0.2 J**	5 U	**0.3 J**	**1 Q J**
1,2,3,7,8,9-HXCDD	PG/G	5	0.1	**0.19 Q J**	5 U	5 U	**0.27 J**	**0.53 Q J**
1,2,3,4,6,7,8-HPCDD	PG/G	5	0.01	**5.2 B**	**1.7 B J**	**1.5 B J**	**5.7 B**	**18 B**
OCDD	PG/G	10	0.0001	**91 B**	**30 B**	**25 B**	**130 B**	**350 B**
2,3,7,8-TCDF	PG/G	1	0.1	1 U	1 U	1 U	1 U	1 U
1,2,3,7,8-PECDF	PG/G	5	0.05	5 U	5 U	5 U	5 U	5 U
2,3,4,7,8-PECDF	PG/G	5	0.5	5 U	5 U	5 U	5 U	5 U
1,2,3,4,7,8-HXCDF	PG/G	5	0.1	5 U	5 U	5 U	5 U	5 U
1,2,3,6,7,8-HXCDF	PG/G	5	0.1	5 U	5 U	5 U	5 U	5 U
2,3,4,6,7,8-HXCDF	PG/G	5	0.1	5 U	5 U	5 U	5 U	5 U
1,2,3,7,8,9-HXCDF	PG/G	5	0.1	5 U	5 U	5 U	5 U	5 U
1,2,3,4,6,7,8-HPCDF	PG/G	5	0.01	5 U	**0.3 B J**	5 U	**0.25 Q B J**	5 U
1,2,3,4,7,8,9-HPCDF	PG/G	5	0.01	5 U	5 U	5 U	5 U	5 U
OCDF	PG/G	10	0.0001	**0.14 Q B J**	**0.69 B J**	**0.19 Q B J**	**0.56 B J**	10 U
DIOXIN TEQ (ND=0)	PG/G	--	--	**0.019**	**0.02**	0	**0.057**	**0.168**
DIOXIN TEQ (ND=1/2RL)	PG/G	--	--	**5.99**	**5.97**	**6.23**	**5.76**	**5.64**

There are no TEL and PEL values for dioxin and furan congeners.

**Source* : Van den Berg et al. 1998. Toxic Equivalency Factors (TEFs) for PCBs, PCDDs, PCDFs for Humans and Wildlife. *Environmental Health Perspectives 106: 775-792.*

NOTE: Shaded and bold values represent detected concentrations.

RL = average reporting limit

TEF = toxicity equivalency factor

TEQ = toxicity eqivalency quotient

B = compound was detected in method blank

J = compound was detected, but below the reporting limit (value is estimated)

Q = estimated maximum possible concentration

U = compound was analyzed but not detected

TABLE 4-10. BUTYLTIN CONCENTRATIONS (UG/KG) IN PROPOSED BORROW MATERIAL
SEAGIRT MARINE TERMINAL, BALTIMORE HARBOR, MARYLAND (JUNE 2006)

			EA-01/02	EA-03/04	EA-05/06	EA-07/08	EA-09/10
ANALYTE	**UNITS**	**RL**					
DIBUTYLTIN	UG/KG	0.32	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
MONOBUTYLTIN	UG/KG	0.52	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U
TETRABUTYLTIN	UG/KG	0.41	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U
TRIBUTYLTIN	UG/KG	0.57	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U

There are no TEL and PEL values for butyltins.

NOTE: Shaded and bold values represent detected concentrations.
RL = average reporting limit
U = compound was analyzed but not detected

TABLE 4-11. SEMIVOLATILE ORGANIC COMPOUND (SVOC) CONCENTRATIONS (UG/KG) IN PROPOSED BORROW MATERIAL

SEAGIRT MARINE TERMINAL, BALTIMORE HARBOR, MARYLAND (JUNE 2006)

ANALYTE	UNITS	MDL	TEL*	PEL*	EA-01/02	EA-03/04	EA-05/06	EA-07/08	EA-09/10
1,2,4-TRICHLOROBENZENE	UG/KG	8.00	--	--	13 U	6.7 U	6.8 U	6.8 U	6.7 U
1,2-DIPHENYLHYDRAZINE	UG/KG	9.14	--	--	15 U	7.7 U	7.7 U	7.7 U	7.6 U
2,4,6-TRICHLOROPHENOL	UG/KG	6.76	--	--	11 U	5.7 U	5.7 U	5.7 U	5.7 U
2,4-DICHLOROPHENOL	UG/KG	7.42	--	--	12 U	6.3 U	6.3 U	6.3 U	6.2 U
2,4-DIMETHYLPHENOL	UG/KG	6.48	--	--	11 U	5.3 U	5.4 U	5.4 U	5.3 U
2,4-DINITROPHENOL	UG/KG	1004	--	--	1700 U	830 U	840 U	830 U	820 U
2,4-DINITROTOLUENE	UG/KG	4.18	--	--	6.9 U	3.5 U	3.5 U	3.5 U	3.5 U
2,6-DINITROTOLUENE	UG/KG	5.68	--	--	9.4 U	4.7 U	4.8 U	4.8 U	4.7 U
2-CHLORONAPHTHALENE	UG/KG	8.44	--	--	14 U	7 U	7.1 U	7.1 U	7 U
2-CHLOROPHENOL	UG/KG	6.20	--	--	10 U	5.2 U	5.3 U	5.3 U	5.2 U
2-METHYLPHENOL	UG/KG	8.94	--	--	15 U	7.4 U	7.5 U	7.4 U	7.4 U
2-NITROPHENOL	UG/KG	7.18	--	--	12 U	6 U	6 U	6 U	5.9 U
3,3'-DICHLOROBENZIDINE	UG/KG	9.76	--	--	16 U	8.2 U	8.3 U	8.2 U	8.1 U
4,6-DINITRO-2-METHYLPHENOL	UG/KG	1004	--	--	1700 U	830 U	840 U	830 U	820 U
4-BROMOPHENYL PHENYL ETHER	UG/KG	20	--	--	33 U	17 U	17 U	17 U	16 U
4-CHLORO-3-METHYLPHENOL	UG/KG	8.60	--	--	14 U	7.2 U	7.3 U	7.3 U	7.2 U
4-CHLOROPHENYL PHENYL ETHER	UG/KG	8.22	--	--	14 U	6.8 U	6.8 U	6.8 U	6.7 U
4-METHYLPHENOL	UG/KG	8.96	--	--	15 U	7.4 U	7.5 U	7.5 U	7.4 U
4-NITROPHENOL	UG/KG	5.36	--	--	8.9 U	4.5 U	4.5 U	4.5 U	4.4 U
BENZOIC ACID	UG/KG	332	--	--	550 U	280 U	280 U	280 U	270 U
BENZYL ALCOHOL	UG/KG	45	--	--	75 U	37 U	38 U	38 U	37 U
BIS(2-CHLOROETHOXY)METHANE	UG/KG	8.96	--	--	15 U	7.4 U	7.5 U	7.5 U	7.4 U
BIS(2-CHLOROETHYL) ETHER	UG/KG	7.78	--	--	13 U	6.5 U	6.5 U	6.5 U	6.4 U
BIS(2-CHLOROISOPROPYL) ETHER	UG/KG	5.78	--	--	9.6 U	4.8 U	4.9 U	4.8 U	4.8 U
BIS(2-ETHYLHEXYL) PHTHALATE	UG/KG	24.8	182.16	2,646.51	41 U	21 U	21 U	21 U	20 U
BUTYL BENZYL PHTHALATE	UG/KG	8.90	--	--	15 U	7.4 U	7.4 U	7.4 U	7.3 U
DIBENZOFURAN	UG/KG	8.98	--	--	15 U	7.5 U	7.5 U	7.5 U	7.4 U
DIETHYL PHTHALATE	UG/KG	7.98	--	--	13 U	6.7 U	6.8 U	6.7 U	6.7 U
DIMETHYL PHTHALATE	UG/KG	8.36	--	--	14 U	6.9 U	7 U	7 U	6.9 U
DI-N-BUTYL PHTHALATE	UG/KG	48.6	--	--	81 U	40 U	41 U	41 U	40 U
DI-N-OCTYL PHTHALATE	UG/KG	9.14	--	--	15 U	7.7 U	7.7 U	7.7 U	7.6 U
HEXACHLOROBENZENE	UG/KG	7.94	--	--	13 U	6.7 U	6.7 U	6.7 U	6.6 U
HEXACHLOROBUTADIENE	UG/KG	7.82	--	--	13 U	6.5 U	6.6 U	6.5 U	6.5 U
HEXACHLOROCYCLOPENTADIENE	UG/KG	32.0	--	--	53 U	27 U	27 U	27 U	26 U
HEXACHLOROETHANE	UG/KG	7.70	--	--	13 U	6.4 U	6.4 U	6.4 U	6.3 U
ISOPHORONE	UG/KG	7.68	--	--	13 U	6.3 U	6.4 U	6.4 U	6.3 U
NITROBENZENE	UG/KG	13.0	--	--	21 U	11 U	11 U	11 U	11 U
N-NITROSODIMETHYLAMINE	UG/KG	100.4	--	--	170 U	83 U	84 U	83 U	82 U
N-NITROSODI-N-PROPYLAMINE	UG/KG	8.0	--	--	13 U	6.7 U	6.8 U	6.8 U	6.7 U
N-NITROSODIPHENYLAMINE	UG/KG	83.2	--	--	140 U	69 U	70 U	69 U	68 U
PENTACHLOROPHENOL	UG/KG	548	--	--	910 U	460 U	460 U	460 U	450 U
PHENOL	UG/KG	8.28	--	--	14 U	6.8 U	6.9 U	6.9 U	6.8 U

* *Source* : MacDonald et al. 1996. Ecotoxicology 5: 253-278.

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
U = compound was analyzed but not detected
TEL = threshold effects level
PEL = probably effects level

TABLE 4-12. VOLATILE ORGANIC COMPOUND (VOC) CONCENTRATIONS (UG/KG) IN PROPOSED BORROW MATERIAL

SEAGIRT MARINE TERMINAL, BALTIMORE HARBOR, MARYLAND (JUNE 2006)

			EA-01/02	EA-03/04	EA-05/06	EA-07/08	EA-09/10
ANALYTE	**UNITS**	**MDL**					
1,1,1-TRICHLOROETHANE	UG/KG	0.342	0.39 U	0.3 U	0.32 U	0.34 U	0.36 U
1,1,2,2-TETRACHLOROETHANE	UG/KG	0.564	0.64 U	0.5 U	0.53 U	0.56 U	0.59 U
1,1,2-TRICHLOROETHANE	UG/KG	0.854	0.97 U	0.75 U	0.8 U	0.85 U	0.9 U
1,1-DICHLOROETHANE	UG/KG	0.362	0.41 U	0.32 U	0.34 U	0.36 U	0.38 U
1,1-DICHLOROETHENE	UG/KG	0.742	0.84 U	0.65 U	0.7 U	0.74 U	0.78 U
1,2-DICHLOROBENZENE	UG/KG	1.16	1.3 U	1 U	1.1 U	1.2 U	1.2 U
1,2-DICHLOROETHANE	UG/KG	0.380	0.43 U	0.33 U	0.36 U	0.38 U	0.4 U
1,2-DICHLOROPROPANE	UG/KG	0.788	0.9 U	0.69 U	0.74 U	0.78 U	0.83 U
1,3-DICHLOROBENZENE	UG/KG	1.14	1.3 U	1 U	1.1 U	1.1 U	1.2 U
1,4-DICHLOROBENZENE	UG/KG	0.862	0.98 U	0.76 U	0.81 U	0.86 U	0.9 U
2-BUTANONE (MEK)	UG/KG	1.76	2 U	1.5 U	1.7 U	1.8 U	1.8 U
2-CHLOROETHYL VINYL ETHER	UG/KG	11.4	13 U	10 U	11 U	11 U	12 U
ACROLEIN	UG/KG	118	140 U	100 U	110 U	120 U	120 U
ACRYLONITRILE	UG/KG	33.2	38 U	29 U	31 U	33 U	35 U
BENZENE	UG/KG	0.688	0.78 U	0.61 U	0.65 U	0.68 U	0.72 U
BROMODICHLOROMETHANE	UG/KG	0.316	0.36 U	0.28 U	0.3 U	0.31 U	0.33 U
BROMOFORM	UG/KG	0.770	0.87 U	0.68 U	0.72 U	0.77 U	0.81 U
BROMOMETHANE	UG/KG	1.16	1.3 U	1 U	1.1 U	1.2 U	1.2 U
CARBON TETRACHLORIDE	UG/KG	0.316	0.36 U	0.28 U	0.3 U	0.31 U	0.33 U
CHLOROETHANE	UG/KG	1.16	1.3 U	1 U	1.1 U	1.2 U	1.2 U
CHLOROFORM	UG/KG	0.316	0.36 U	0.28 U	0.3 U	0.31 U	0.33 U
CHLOROMETHANE	UG/KG	0.362	0.41 U	0.32 U	0.34 U	0.36 U	0.38 U
CIS-1,3-DICHLOROPROPENE	UG/KG	0.362	0.41 U	0.32 U	0.34 U	0.36 U	0.38 U
DIBROMOCHLOROMETHANE	UG/KG	0.328	0.37 U	0.29 U	0.31 U	0.33 U	0.34 U
DICHLORODIFLUOROMETHANE	UG/KG	0.636	0.72 U	0.56 U	0.6 U	0.63 U	0.67 U
ETHYLBENZENE	UG/KG	1.16	1.3 U	1 U	1.1 U	1.2 U	1.2 U
METHYLENE CHLORIDE	UG/KG	1.68	**6 J**	**2.7 J B**	**5.1 J B**	**3.2 J B**	**4.6 J B**
TETRACHLOROETHENE	UG/KG	0.964	1.1 U	0.85 U	0.91 U	0.96 U	1 U
TOLUENE	UG/KG	0.742	0.84 U	0.65 U	0.7 U	0.74 U	0.78 U
TRANS-1,2-DICHLOROETHENE	UG/KG	0.8	0.93 U	0.72 U	0.77 U	0.82 U	0.86 U
TRANS-1,3-DICHLOROPROPENE	UG/KG	0.348	0.39 U	0.31 U	0.33 U	0.35 U	0.36 U
TRICHLOROETHENE	UG/KG	1.07	1.2 U	0.95 U	1 U	1.1 U	1.1 U
TRICHLOROFLUOROMETHANE	UG/KG	1.5	1.7 U	1.3 U	1.4 U	1.5 U	1.6 U
VINYL CHLORIDE	UG/KG	0.828	0.94 U	0.73 U	0.78 U	0.82 U	0.87 U

There are no TEL and PEL values for volatiles.

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
B = compound was detected in method blank
J = compound was detected but below the reporting limit (value is estimated)
U = compound was analyzed but not detected

TABLE 4-13. GENERAL CHEMISTRY CONCENTRATIONS OF SITE WATER AND STANDARD ELUTRIATES
SEAGIRT MARINE TERMINAL, BALTIMORE HARBOR, MARYLAND (JUNE 2006)

ANALYTE	UNITS	RL	USEPA/MD ACUTE CRITERIA*	USEPA/MD CHRONIC CRITERIA*	SITE WATER	EA-01/02	EA-03/04	EA-05/06	EA-07/08	EA-09/10
AMMONIA AS NITROGEN (a)	MG/L	0.049	43	6.4	**0.08 B**	**4.8 J**	**0.72 J**	**0.91 J**	**2 J**	**2.2 J**
BIOCHEMICAL OXYGEN DEMAND	MG/L	0.79	--	--	**2.3**	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U
CHEMICAL OXYGEN DEMAND	MG/L	14	--	--	**499**	**278**	**332**	**324**	**330**	**417**
CYANIDE, DISSOLVED	UG/L	4.3	--	--	4.3 U	4.3 U	**14**	4.3 U	4.3 U	4.3 U
NITRATE-NITRITE	MG/L	0.01	--	--	0.01 U	**0.13**	**0.048 B**	**0.061 B**	**0.012 B**	**0.024 B**
TOTAL KJELDAHL NITROGEN	MG/L	0.97	--	--	1.9 U	0.97 U	**2.4 B**	**1.2 B**	**9**	**3**
TOTAL ORGANIC CARBON	MG/L	0.31	--	--	**1.3**	**1.5**	**0.92 B**	**0.96 B**	**0.93 B**	**1.5**
TOTAL PHOSPHORUS	MG/L	0.044	--	--	**0.2 J**	**0.066 B**	**0.18**	**0.16**	**0.16**	**0.063 B**
TOTAL SULFIDE	MG/L	1.2	--	--	1.2 U	**2.4 B**	1.2 U	1.2 U	**1.6 B**	**1.6 B**

**Sources*: USEPA 2006. *National Recommended Water Quality Criteria* and Maryland COMAR 26.08.02.03-2

(a) ammonia criteria for Patapsco River samples based on average salinity (6.5 ppt), water temperature (18.8 C), and pH (6.9) from mid-depth of the water column during the 2004 fis and benthic surveys

NOTE: Shaded and bold values represent detected concentrations.

RL = average reporting limit

B (inorganic) = compound was detected, but below reporting limit (value is estimated)

J (inorganic) = compound was detected in method blank

U = compound was analyzed but not detected

TABLE 4-14. METAL CONCENTRATIONS (UG/L) IN SITE WATER AND STANDARD ELUTRIATES
SEAGIRT MARINE TERMINAL, BALTIMORE HARBOR, MARYLAND (JUNE 2006)

ANALYTE	UNITS	MDL	USEPA/MD ACUTE CRITERIA*	USEPA/MD CHRONIC CRITERIA*	SITE WATER	EA-01/02	EA-03/04	EA-05/06	EA-07/08	EA-09/10
ALUMINUM	UG/L	22.5	--	--	**1320**	**1120**	**1430**	**912**	**1120**	**381**
ANTIMONY	UG/L	0.420	--	--	**0.99 B**	0.42 U	**0.9 B**	0.42 U	0.42 U	**1.4 B**
ARSENIC	UG/L	0.610	69	36	**5.5**	**5.8**	**4.7 B**	**8.8**	**6.1**	**7.2**
BERYLLIUM	UG/L	0.330	--	--	0.33 U	**0.64 B**	0.33 U	**0.5 B**	0.33 U	0.33 U
CADMIUM	UG/L	0.370	40	8.8	**0.41 B**	0.37 U	0.37 U	0.37 U	0.37 U	**0.38 B J**
CHROMIUM, TOTAL	UG/L	1.40	1100	50	**18.1 J**	**5.1 B**	**10.8**	**6.3 B**	**7.5 B**	**4.8 B**
CHROMIUM, HEXAVALENT	MG/L	0.0018	1.1	0.05	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U
COBALT	UG/L	0.160	--	--	**2.6**	**29.2**	**2.9**	**2.9**	**9.3**	**0.65 B**
COPPER	UG/L	0.560	4.8	3.1	**15.6**	**4.3 B**	**4.5 B**	**2.6 B**	**1.7 B**	**2.1 B**
IRON	UG/L	30.9	--	--	**2840**	**27200 J**	**1970 J**	**956 J**	**1940 J**	**305 J**
LEAD	UG/L	0.013	210	8.1	**8.6 J**	**0.56 B**	**1.4 B**	**0.6 B**	**0.68 B**	**0.21 B**
MANGANESE	UG/L	0.420	--	--	**140 E**	**1470**	**995**	**1320**	**1940**	**565**
MERCURY	UG/L	0.048	1.8	0.94	**0.07 B**	**0.084 B J**	**0.058 B J**	**0.095 B J**	**0.089 B J**	**0.063 B J**
NICKEL	UG/L	0.990	74	8.2	**5.3**	**51.6**	**2.9 B**	**1.8 B**	**5.7**	0.99 U
SELENIUM	UG/L	0.950	290	71	**15.8 B**	**12.1 B J**	**17.7 B J**	**10.1 B J**	**9.2 B J**	**14.6 B J**
SILVER	UG/L	1.50	1.9	--	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
THALLIUM	UG/L	0.029	--	--	**0.41 B**	0.029 U	**0.14 B**	0.029 U	0.029 U	0.029 U
TIN	UG/L	11.2	--	--	**40.1 J**	**12.2 B**	**18.7 B**	**17.7 B**	**12.6 B**	**15.1 B**
ZINC	UG/L	3.70	90	81	**33**	**60.6**	**7.4 B**	**24.4 B**	**6.4 B**	3.7 U

**Sources*: USEPA 2006. *National Recommended Water Quality Criteria* and Maryland COMAR 26.08.02.03-2

NOTE: Shaded and bold values represent detected concentrations; cells shaded green exceed the chronic EPA value; cells shaded orange exceed both the chronic and acute EPA values.
MDL = average method detection limit
B (inorganic) = compound was detected, but below reporting limit (value is estimated)
J (inorganic) = compound was detected in method blank
U = compound was analyzed but not detected

TABLE 4-15. COMPARISION OF METAL CONCENTRATIONS (UG/L) FOR THE FIRST AND SECOND ROUNDS OF SITE WATER AND STANDARD ELUTRIATE TESTING
SEAGIRT MARINE TERMINAL, BALTIMORE HARBOR, MARYLAND (JUNE 2006)

ANALYTE	UNITS	MDL	USEPA/MD ACUTE CRITERIA*	USEPA/MD CHRONIC CRITERIA*	SITE WATER - ORIGINAL	SITE WATER - RE	EA-01/02	EA-01/02-RE	EA-03/04	EA-03/04-RE	EA-05/06	EA-05/06-RE	EA-07/08	EA-07/08-RE	EA-09/10	EA-09/10-RE
ALUMINUM	UG/L	20.9	--	--	**1320**	**177**	**1,120**	**724**	**1,430**	**218**	**912**	**458**	**1120**	**199**	**381**	**302**
ANTIMONY	UG/L	0.389	--	--	**0.99 B**	0.42 U	0.42 U	0.42 U	**0.9 B**	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	**1.4 B**	0.42 U
ARSENIC	UG/L	0.565	69	36	**5.5**	**5.3**	**5.8**	**5.2**	**4.7 B**	**5.6**	**8.8**	**3.3 B**	**6.1**	**5**	**7.2**	**5.7**
BERYLLIUM	UG/L	0.306	--	--	0.33 U	0.33 U	**0.64 B**	**1.4 B**	0.33 U	0.33 U	**0.5 B**	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
CADMIUM	UG/L	0.343	40	8.8	**0.41 B**	0.37 U	0.37 U	**2.4 B**	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	**0.38 B J**	0.37 U
CHROMIUM, TOTAL	UG/L	1.30	1100	50	**18.1 J**	**3.3 B**	**5.1 B**	**4.2 B J**	**10.8**	**4 B J**	**6.3 B**	**4.7 B J**	**7.5 B**	**4.8 B J**	**4.8 B**	**5.4 B J**
CHROMIUM, HEXAVALENT	MG/L	0.002	1.1	0.05	0.0018 U	--	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U
COBALT	UG/L	0.148	--	--	**2.6**	0.16 U	**29.2**	**281**	**2.9**	**88.6**	**2.9**	**16**	**9.3**	**1.9 B**	**0.65 B**	**1.3 B**
COPPER	UG/L	0.519	4.8	3.1	**15.6 ab**	**2.6 B**	**4.3 B b**	**2 B**	**4.5 B b**	**2.7 B**	**2.6 B**	**4.3 B b**	**1.7 B**	**2.5 B**	**2.1 B**	**2.9 B**
IRON	UG/L	28.7	--	--	**2840**	**172 B**	**27,200 J**	**18,100**	**1,970 J**	**237 B**	**956 J**	**384**	**1,940 J**	**475**	**305 J**	**356**
LEAD	UG/L	0.012	210	8.1	**8.6 J b**	**0.98 B**	**0.56 B**	**0.64 B**	**1.4 B**	**0.37 B**	**0.6 B**	**0.34 B**	**0.68 B**	**0.57 B**	**0.21 B**	**0.28 B**
MANGANESE	UG/L	0.389	--	--	**140 E**	**98.9**	**1470**	**2,610 J E**	**995**	**5,000 J**	**1,320**	**754 J**	**1,940**	**1,530 J**	**565**	**491 J**
MERCURY	UG/L	0.048	1.8	0.94	**0.07 B**	0.048 U	**0.084 B J**	0.048 U	**0.058 B J**	0.048 U	**0.095 B J**	0.048 U	**0.089 B J**	0.048 U	**0.063 B J**	0.048 U
NICKEL	UG/L	0.918	74	8.2	**5.3**	**2.8 B**	**51.6 b**	**206 E ab**	**2.9 B**	**31.7 b**	**1.8 B**	**20.9 b**	**5.7**	**6.1**	0.99 U	**3.7 B**
SELENIUM	UG/L	0.881	290	71	**15.8 B**	**11.1 B**	**12.1 B J**	**14.8 B**	**17.7 B J**	**18 B**	**10.1 B J**	**15.9 B**	**9.2 B J**	**14.7 B**	**14.6 B J**	**15.9 B**
SILVER	UG/L	1.39	1.9	--	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
THALLIUM	UG/L	0.027	--	--	**0.41 B**	0.29 U	0.029 U	**0.25 B**	**0.14 B**	**0.3 B**	0.029 U	**0.065 B**	0.029 U	0.029 U	0.029 U	0.029 U
TIN	UG/L	10.4	--	--	**40.1 J**	11.2 U	**12.2 B**	**23.5 B J**	**18.7 B**	**23.4 B J**	**17.7 B**	**20.7 B J**	**12.6 B**	**18.6 B J**	**15.1 B**	**19 B J**
ZINC	UG/L	3.43	90	81	**33**	**8.1 B J**	**60.6**	**838 E ab**	**7.4 B**	**44.4**	**24.4 B**	**7.1 B**	**6.4 B**	**6.7 B**	3.7 U	**5.9 B**

**Sources* : USEPA 2006. *National Recommended Water Quality Criteria* and Maryland COMAR 26.08.02.03-2

NOTE: Shaded and bold values represent detected concentrations; cells shaded green exceed the chronic EPA value; cells shaded orange exceed both the chronic and acute EPA values.
MDL = average method detection limit
RE = reaanlysis sample
B (inorganic) = compound was detected, but below reporting limit (value is estimated)
J (inorganic) = compound was detected in method blank
U = compound was analyzed but not detected

TABLE 4-16. PCB CONGENER CONCENTRATIONS (NG/L) IN SITE WATER AND STANDARD ELUTRIATES
SEAGIRT MARINE TERMINAL, BALTIMORE HARBOR, MARYLAND (JUNE 2006)

ANALYTE	UNITS	MDL	USEPA/MD ACUTE CRITERIA*	USEPA/MD CHRONIC CRITERIA*	SITE WATER	EA-01/02	EA-03/04	EA-05/06	EA-07/08	EA-09/10
PCB 8 (BZ)	NG/L	0.368	--	--	0.42 U	0.37 U	0.37 U	0.36 U	0.37 U	0.37 U
PCB 18 (BZ)	NG/L	0.370	--	--	0.46 U	0.38 U	0.37 U	0.36 U	0.37 U	0.37 U
PCB 28 (BZ)	NG/L	0.426	--	--	**0.41 J PG**	0.43 U	0.42 U	0.42 U	0.43 U	0.43 U
PCB 44 (BZ)	NG/L	0.440	--	--	**0.47 J**	0.45 U	0.44 U	**0.5 J**	0.44 U	0.44 U
PCB 49 (BZ)	NG/L	0.266	--	--	**0.82 J**	0.27 U	0.26 U	**0.28 J PG**	0.27 U	0.27 U
PCB 52 (BZ)	NG/L	0.416	--	--	**0.85 J**	0.42 U	0.41 U	**0.46 J PG**	0.42 U	0.42 U
PCB 66 (BZ)	NG/L	0.468	--	--	**1.4**	0.47 U	0.47 U	0.46 U	0.47 U	0.47 U
PCB 77 (BZ)	NG/L	0.460	--	--	0.42 U	0.47 U	0.46 U	0.45 U	0.46 U	0.46 U
PCB 87 (BZ)	NG/L	0.416	--	--	0.39 U	0.42 U	0.41 U	0.41 U	0.42 U	0.42 U
PCB 101 (BZ)	NG/L	0.460	--	--	0.39 U	0.47 U	0.46 U	0.45 U	0.46 U	0.46 U
PCB 105 (BZ)	NG/L	0.450	--	--	0.36 U	0.46 U	0.45 U	0.44 U	0.45 U	0.45 U
PCB 118 (BZ)	NG/L	0.470	--	--	**0.51 J PG**	0.48 U	0.47 U	0.46 U	0.47 U	0.47 U
PCB 126 (BZ)	NG/L	0.306	--	--	0.37 U	0.31 U	0.3 U	0.3 U	0.31 U	0.31 U
PCB 128 (BZ)	NG/L	0.480	--	--	0.34 U	0.49 U	0.48 U	0.47 U	0.48 U	0.48 U
PCB 138 (BZ)	NG/L	0.470	--	--	0.32 U	0.48 U	0.47 U	0.46 U	0.47 U	0.47 U
PCB 153 (BZ)	NG/L	0.440	--	--	**0.48 J**	0.45 U	0.44 U	0.43 U	0.44 U	0.44 U
PCB 156 (BZ)	NG/L	0.420	--	--	0.36 U	0.43 U	0.42 U	0.41 U	0.42 U	0.42 U
PCB 169 (BZ)	NG/L	0.230	--	--	0.41 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
PCB 170 (BZ)	NG/L	0.220	--	--	**0.41 J**	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
PCB 180 (BZ)	NG/L	0.282	--	--	0.35 U	0.29 U	0.28 U	0.28 U	0.28 U	0.28 U
PCB 183 (BZ)	NG/L	0.480	--	--	0.35 U	0.49 U	0.48 U	0.47 U	0.48 U	0.48 U
PCB 184 (BZ)	NG/L	0.220	--	--	0.4 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
PCB 187 (BZ)	NG/L	0.466	--	--	0.37 U	0.47 U	0.46 U	0.46 U	0.47 U	0.47 U
PCB 195 (BZ)	NG/L	0.276	--	--	0.37 U	0.28 U	0.27 U	0.27 U	0.28 U	0.28 U
PCB 206 (BZ)	NG/L	0.292	--	--	**0.53 J**	0.3 U	0.29 U	0.29 U	0.29 U	0.29 U
PCB 209 (BZ)	NG/L	0.250	--	--	0.42 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
TOTAL PCBs (ND=0)	NG/L	--	--	30	**9.06**	**0**	**0**	**1.92**	**0**	**0**
TOTAL PCBs (ND=1/2MDL)	NG/L	--	--	30	**19.51**	**17.64**	**17.28**	**17.12**	**17.46**	**17.46**

**Sources*: USEPA 2006. *National Recommended Water Quality Criteria* and Maryland COMAR 26.08.02.03-2

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
J = compound was detected, but below reporting limit (value is estimated)
PG = the percent difference between between the original and confirmation analysis is greater than 40%
U = compound was analyzed but not detected

TABLE 4-17. PCB AROCLOR CONCENTRATIONS (UG/L) IN SITE WATER AND STANDARD ELUTRIATES
SEAGIRT MARINE TERMINAL, BALTIMORE HARBOR, MARYLAND (JUNE 2006)

ANALYTE	UNITS	MDL	SITE WATER	EA-01/02	EA-03/04	EA-05/06	EA-07/08	EA-09/10
AROCLOR 1016	UG/L	0.482	0.47 U	0.47 U	0.49 U	0.49 U	0.48 U	0.48 U
AROCLOR 1221	UG/L	0.442	0.43 U	0.43 U	0.45 U	0.45 U	0.44 U	0.44 U
AROCLOR 1232	UG/L	0.522	0.51 U	0.51 U	0.53 U	0.53 U	0.52 U	0.52 U
AROCLOR 1242	UG/L	0.248	0.24 U	0.24 U	0.25 U	0.25 U	0.25 U	0.25 U
AROCLOR 1248	UG/L	0.336	0.32 U	0.33 U	0.34 U	0.34 U	0.33 U	0.34 U
AROCLOR 1254	UG/L	0.346	0.34 U	0.34 U	0.35 U	0.35 U	0.34 U	0.35 U
AROCLOR 1260	UG/L	0.570	0.55 U	0.56 U	0.58 U	0.58 U	0.56 U	0.57 U

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
U = compound was anlyzed but not detected

TABLE 4-18. PAH CONCENTRATIONS (UG/L) IN SITE WATER AND STANDARD ELUTRIATES
SEAGIRT MARINE TERMINAL, BALTIMORE HARBOR, MARYLAND (JUNE 2006)

ANALYTE	UNITS	MDL	SITE WATER	EA-01/02	EA-03/04	EA-05/06	EA-07/08	EA-09/10
1-METHYLNAPHTHALENE	UG/L	0.0828	**0.037 J**	0.083 U	0.084 U	0.082 U	0.082 U	0.083 U
2-METHYLNAPHTHALENE	UG/L	0.0492	**0.061 J**	0.049 U	0.05 U	0.049 U	0.049 U	0.049 U
ACENAPHTHENE	UG/L	0.0376	**0.058 J**	**0.054 J**	**0.084 J**	**0.072 J**	**0.078 J**	**0.059 J**
ACENAPHTHYLENE	UG/L	0.0346	0.033 U	0.035 U	0.035 U	0.034 U	0.034 U	0.035 U
ANTHRACENE	UG/L	0.0242	**0.039 J**	0.024 U	0.025 U	**0.024 J**	0.024 U	0.024 U
BENZO(A)ANTHRACENE	UG/L	0.0212	**0.037 J**	0.021 U	0.022 U	**0.04 J**	0.021 U	0.021 U
BENZO(A)PYRENE	UG/L	0.0242	0.072 U	0.024 U	0.025 U	0.024 U	0.024 U	0.024 U
BENZO(B)FLUORANTHENE	UG/L	0.0242	0.04 U	0.024 U	0.025 U	0.024 U	0.024 U	0.024 U
BENZO(GHI)PERYLENE	UG/L	0.0296	0.12 U	0.03 U	0.03 U	0.029 U	0.029 U	0.03 U
BENZO(K)FLUORANTHENE	UG/L	0.020	0.057 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
CHRYSENE	UG/L	0.020	**0.039 J**	0.02 U	0.02 U	**0.024 J**	0.02 U	0.02 U
DIBENZO(A,H)ANTHRACENE	UG/L	0.0302	0.14 U	0.03 U	0.031 U	0.03 U	0.03 U	0.03 U
FLUORANTHENE	UG/L	0.031	**0.11 J**	0.031 U	0.031 U	**0.19 J**	0.031 U	0.031 U
FLUORENE	UG/L	0.036	**0.077 J**	**0.064 J**	**0.089 J**	**0.071 J**	**0.09 J**	**0.064 J**
INDENO(1,2,3-CD)PYRENE	UG/L	0.0242	0.099 U	0.024 U	0.025 U	0.024 U	0.024 U	0.024 U
NAPHTHALENE	UG/L	0.0376	**0.098 J**	**0.053 J**	**0.092 J**	**0.094 J**	**0.086 J**	**0.048 J**
PHENANTHRENE	UG/L	0.031	**0.29**	**0.21**	**0.28**	**0.31**	**0.24**	**0.2**
PYRENE	UG/L	0.0236	**0.067 J**	0.024 U	0.024 U	**0.11 J**	0.023 U	0.024 U
TOTAL PAHs (ND=0)	UG/L	--	**0.913**	**0.381**	**0.545**	**0.935**	**0.494**	**0.371**
TOTAL PAHs (ND=1/2MDL)	UG/L	--	**1.578**	**1.781**	**1.945**	**1.835**	**1.894**	**1.771**

NOTE: Shaded and bold values represent detected concentrations.

MDL = average method detection limit

J = compound was detected, but below the reporting limit (value is estimated)

U = compound was analyzed but not detected

TABLE 4-19. CHLORINATED PESTICIDE CONCENTRATIONS (UG/L) IN SITE WATER AND STANDARD ELUTRIATES
SEAGIRT MARINE TERMINAL, BALTIMORE HARBOR, MARYLAND (JUNE 2006)

ANALYTE	UNITS	MDL	USEPA/MD ACUTE CRITERIA*	USEPA/MD CHRONIC CRITERIA*	SITE WATER	EA-01/02	EA-03/04	EA-05/06	EA-07/08	EA-09/10
4,4'-DDD	UG/L	0.0154	--	--	0.036 U	0.015 U	0.016 U	0.016 U	0.015 U	0.015 U
4,4'-DDE	UG/L	0.015	--	--	0.03 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
4,4'-DDT	UG/L	0.0144	0.13	0.001	0.032 U	0.014 U	0.015 U	0.015 U	0.014 U	0.014 U
ALDRIN	UG/L	0.0138	1.3	--	0.036 U	0.013 U	0.014 U	0.014 U	0.014 U	0.014 U
ALPHA-BHC	UG/L	0.0136	--	--	0.031 U	0.013 U	**0.029 J**	0.014 U	0.013 U	0.014 U
BETA-BHC	UG/L	0.0158	--	--	0.031 U	0.015 U	0.016 U	0.016 U	0.016 U	0.016 U
CHLORDANE (TECHNICAL)	UG/L	0.170	0.09	0.004	0.048 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
CHLOROBENSIDE	UG/L	0.0308	--	--	0.06 U	0.03 U	0.031 U	0.031 U	0.031 U	0.031 U
DACHTAL	UG/L	0.0308	--	--	0.06 U	0.03 U	0.031 U	0.031 U	0.031 U	0.031 U
DELTA-BHC	UG/L	0.0158	--	--	0.033 U	0.015 U	0.016 U	0.016 U	0.016 U	0.016 U
DIELDRIN	UG/L	0.0156	0.71	0.0019	0.042 U	0.015 U	0.016 U	0.016 U	0.015 U	0.016 U
ENDOSULFAN I	UG/L	0.015	0.034	0.0087	0.031 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
ENDOSULFAN II	UG/L	0.0274	0.034	0.0087	0.043 U	0.027 U	0.028 U	0.028 U	0.027 U	0.027 U
ENDOSULFAN SULFATE	UG/L	0.0166	--	--	0.047 U	0.016 U	0.017 U	0.017 U	0.016 U	0.017 U
ENDRIN	UG/L	0.0146	0.037	0.0023	0.035 U	0.014 U	0.015 U	0.015 U	0.014 U	0.015 U
ENDRIN ALDEHYDE	UG/L	0.0158	--	--	0.03 U	0.015 U	0.016 U	0.016 U	0.016 U	0.016 U
GAMMA-BHC (LINDANE)	UG/L	0.014	0.16	--	0.027 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
HEPTACHLOR	UG/L	0.0136	0.053	0.0036	0.029 U	0.013 U	0.014 U	0.014 U	0.013 U	0.014 U
HEPTACHLOR EPOXIDE	UG/L	0.015	0.053	0.0036	0.044 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
METHOXYCHLOR	UG/L	0.0306	--	0.03	0.057 U	0.03 U	0.031 U	0.031 U	0.03 U	0.031 U
MIREX	UG/L	0.0168	--	0.001	0.033 U	0.016 U	0.017 U	0.017 U	0.017 U	0.017 U
TOXAPHENE	UG/L	0.0702	0.21	0.0002	0.16 U	0.069 U	0.071 U	0.071 U	0.07 U	0.07 U

**Sources* : USEPA 2006. *National Recommended Water Quality Criteria* and Maryland COMAR 26.08.02.03-2

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
J = compound was detected, but below the reporting limit (value is estimated)
U = compound was analyzed but not detected

TABLE 4-20. ORGANOPHOSPHORUS PESTICIDE CONCENTRATIONS (UG/L) IN SITE WATER AND STANDARD ELUTRIATES

SEAGIRT MARINE TERMINAL, BALTIMORE HARBOR, MARYLAND (JUNE 2006)

ANALYTE	UNITS	MDL	USEPA/MD CHRONIC CRITERIA*	SITE WATER	EA-01/02	EA-03/04	EA-05/06	EA-07/08	EA-09/10
AZINPHOS-METHYL	UG/L	0.27	0.1	0.12 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
DEMETON (TOTAL)	UG/L	0.732	0.1	0.36 U	0.72 U	0.73 U	0.73 U	0.74 U	0.74 U
MALATHION	UG/L	0.24	0.1	0.067 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
METHYL PARATHION	UG/L	0.264	--	0.04 U	0.26 U	0.26 U	0.26 U	0.27 U	0.27 U
PARATHION	UG/L	0.234	--	0.077 U	0.23 U	0.23 U	0.23 U	0.24 U	0.24 U

**Sources*: USEPA 2006. *National Recommended Water Quality Criteria* and Maryland COMAR 26.08.02.03-2

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
U = compound was analyzed but not detected

TABLE 4-21. DIOXIN AND FURAN CONCENTRATIONS (PG/L) IN SITE WATER AND STANDARD ELUTRIATES

SEAGIRT MARINE TERMINAL, BALTIMORE HARBOR, MARYLAND (JUNE 2006)

ANALYTE	UNITS	TEF*	RL	SITE WATER	EA-01/02	EA-03/04	EA-05/06	EA-07/08	EA-09/10
2,3,7,8-TCDD	PG/L	1	9.92	9.5 U	9.9 U	10 U	9.8 U	10 U	9.9 U
1,2,3,7,8-PECDD	PG/L	1	49.8	48 U	50 U	50 U	49 U	50 U	50 U
1,2,3,4,7,8-HXCDD	PG/L	0.1	49.8	48 U	50 U	50 U	49 U	50 U	50 U
1,2,3,6,7,8-HXCDD	PG/L	0.1	49.8	**18 J**	50 U	50 U	49 U	50 U	50 U
1,2,3,7,8,9-HXCDD	PG/L	0.1	49.8	**7.6 J**	50 U	50 U	49 U	50 U	50 U
1,2,3,4,6,7,8-HPCDD	PG/L	0.01	49.8	**74**	50 U	50 U	49 U	50 U	**5.8 J**
OCDD	PG/L	0.0001	99.2	**760 B**	**16 B J**	**30 B J**	**17 Q B J**	**26 B J**	**170 B**
2,3,7,8-TCDF	PG/L	0.1	9.92	9.5 U	9.9 U	10 U	9.8 U	10 U	9.9 U
1,2,3,7,8-PECDF	PG/L	0.05	49.8	**1.7 Q J**	50 U	50 U	49 U	50 U	**1.2 Q J**
2,3,4,7,8-PECDF	PG/L	0.5	49.8	**1.5 Q J**	50 U	50 U	49 U	50 U	50 U
1,2,3,4,7,8-HXCDF	PG/L	0.1	49.8	**3.5 Q J**	50 U	50 U	49 U	50 U	50 U
1,2,3,6,7,8-HXCDF	PG/L	0.1	49.8	**1.6 J**	50 U	50 U	49 U	50 U	50 U
2,3,4,6,7,8-HXCDF	PG/L	0.1	49.8	**0.83 Q J**	50 U	50 U	49 U	50 U	50 U
1,2,3,7,8,9-HXCDF	PG/L	0.1	49.8	**1.4 J**	50 U	50 U	49 U	50 U	50 U
1,2,3,4,6,7,8-HPCDF	PG/L	0.01	49.8	**21 J**	50 U	50 U	49 U	50 U	50 U
1,2,3,4,7,8,9-HPCDF	PG/L	0.01	49.8	**2.3 Q J**	50 U	50 U	49 U	50 U	50 U
OCDF	PG/L	0.0001	99.2	**37 B J**	**2.4 Q J**	100 U	98 U	100 U	99 U
DIOXIN TEQ (ND=0)	PG/L	--	--	**5.10**	**0.00024**	**0**	**0**	**0**	**0.118**
DIOXIN TEQ (ND=1/2RL)	PG/L	--	--	**36.7**	**62.4**	**62.5**	**61.3**	**62.5**	**61.1**

**Source* : Van den Berg et al. 1998. Toxic Equivalency Factors (TEFs) for PCBs, PCDDs, PCDFs for Humans and Wildlife. *Environmental Health Perspectives 106: 775-792.*

NOTE: Shaded and bold values represent detected concentrations.

RL = average reporting limit

TEF = toxicity equivalency factor

TEQ = toxicity eqivalency quotient

B = compound was detected in method blank

J = compound was detected, but below the reporting limit (value is estimated)

Q = estimated maximum possible concentration

U = compound was analyzed but not detected

TABLE 4-22. BUTYLTIN CONCENTRATIONS (UG/L) IN SITE WATER AND STANDARD ELUTRIATES
SEAGIRT MARINE TERMINAL, BALTIMORE HARBOR, MARYLAND (JUNE 2006)

ANALYTE	UNITS	RL	SITE WATER	EA-01/02	EA-03/04	EA-05/06	EA-07/08	EA-09/10
DIBUTYLTIN	UG/L	0.01	**0.067 B**	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
MONOBUTYLTIN	UG/L	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
TETRABUTYLTIN	UG/L	0.0086	0.0086 U	0.0086 U	0.0086 U	0.0086 U	0.0086 U	0.0086 U
TRIBUTYLTIN	UG/L	0.012	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U

NOTE: Shaded and bold values represent detected concentrations.

RL = average reporting limit

B = compound was detected in method blank

U = compound was analyzed but not detected

TABLE 4-23. SEMIVOLATILE ORGANIC COMPOUND (SVOC) CONCENTRATIONS (UG/L) IN SITE WATER AND STANDARD ELUTRIATES
SEAGIRT MARINE TERMINAL, BALTIMORE HARBOR, MARYLAND (JUNE 2006)

ANALYTE	UNITS	MDL	USEPA/MD ACUTE CRITERIA*	USEPA/MD CHRONIC CRITERIA*	SITE WATER	EA-01/02	EA-03/04	EA-05/06	EA-07/08	EA-09/10
1,2,4-TRICHLOROBENZENE	UG/L	1.36	--	--	5.8 U	1.4 U	1.4 U	1.3 U	1.3 U	1.4 U
1,2-DIPHENYLHYDRAZINE	UG/L	1.3	--	--	3.2 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
2,4,6-TRICHLOROPHENOL	UG/L	1.5	--	--	2.9 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
2,4-DICHLOROPHENOL	UG/L	1.3	--	--	3.2 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
2,4-DIMETHYLPHENOL	UG/L	1.8	--	--	3.3 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
2,4-DINITROPHENOL	UG/L	14.6	--	--	21 U	15 U	15 U	14 U	14 U	15 U
2,4-DINITROTOLUENE	UG/L	1.3	--	--	5 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
2,6-DINITROTOLUENE	UG/L	1.4	--	--	1 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
2-CHLORONAPHTHALENE	UG/L	1.4	--	--	5.6 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
2-CHLOROPHENOL	UG/L	1.4	--	--	2.8 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
4-METHYLPHENOL	UG/L	1.5	--	--	2.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
2-NITROPHENOL	UG/L	2.96	--	--	3.3 U	3 U	3 U	2.9 U	2.9 U	3 U
3,3'-DICHLOROBENZIDINE	UG/L	25	--	--	6.5 U	25 U	25 U	25 U	25 U	25 U
4,6-DINITRO-2-METHYLPHENOL	UG/L	9.52	--	--	19 U	9.5 U	9.6 U	9.5 U	9.5 U	9.5 U
4-BROMOPHENYL PHENYL ETHER	UG/L	1.2	--	--	0.95 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
4-CHLORO-3-METHYLPHENOL	UG/L	1.3	--	--	1 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
4-CHLOROPHENYL PHENYL ETHER	UG/L	1.6	--	--	1.4 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U
4-METHYLPHENOL	UG/L	3.46	--	--	1.4 U	3.5 U	3.5 U	3.4 U	3.4 U	3.5 U
4-NITROPHENOL	UG/L	1.76	--	--	16 U	1.8 U	1.8 U	1.7 U	1.7 U	1.8 U
BENZOIC ACID	UG/L	38.6	--	--	4.9 U	39 U	39 U	38 U	38 U	39 U
BENZYL ALCOHOL	UG/L	1.9	--	--	7.6 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
BIS(2-CHLOROETHOXY)METHANE	UG/L	3.4	--	--	3.8 U	3.4 U	3.4 U	3.4 U	3.4 U	3.4 U
BIS(2-CHLOROETHYL) ETHER	UG/L	1.4	--	--	2.3 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
BIS(2-CHLOROISOPROPYL) ETHER	UG/L	1.7	--	--	5.9 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
BIS(2-ETHYLHEXYL) PHTHALATE	UG/L	0.898	--	--	**9 J**	**4.4 J**	**4.5 J**	**2 J**	**2.8 J**	**9 J**
BUTYL BENZYL PHTHALATE	UG/L	0.996	--	--	2.8 U	1 U	1 U	0.99 U	0.99 U	1 U
DIBENZOFURAN	UG/L	1.5	--	--	5.8 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
DIETHYL PHTHALATE	UG/L	1.1	--	--	1.4 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
DIMETHYL PHTHALATE	UG/L	1.22	--	--	1.2 U	1.2 U	1.3 U	1.2 U	1.2 U	1.2 U
DI-N-BUTYL PHTHALATE	UG/L	1.1	--	--	1.2 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
DI-N-OCTYL PHTHALATE	UG/L	0.938	--	--	1.5 U	0.94 U	0.95 U	0.93 U	0.93 U	0.94 U
HEXACHLOROBENZENE	UG/L	0.0126	--	--	0.024 U	0.012 U	0.013 U	0.013 U	0.012 U	0.013 U
HEXACHLOROBUTADIENE	UG/L	1.46	--	--	7.8 U	1.5 U	1.5 U	1.4 U	1.4 U	1.5 U
HEXACHLOROCYCLOPENTADIENE	UG/L	6.18	--	--	1 U	6.2 U	6.3 U	6.1 U	6.1 U	6.2 U
HEXACHLOROETHANE	UG/L	1.36	--	--	6.8 U	1.4 U	1.4 U	1.3 U	1.3 U	1.4 U
ISOPHORONE	UG/L	1.4	--	--	6 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
NITROBENZENE	UG/L	1.42	--	--	2.2 U	1.4 U	1.5 U	1.4 U	1.4 U	1.4 U
N-NITROSODIMETHYLAMINE	UG/L	1.7	--	--	1.1 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
N-NITROSODI-N-PROPYLAMINE	UG/L	1.5	--	--	3.7 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
N-NITROSODIPHENYLAMINE	UG/L	4.12	--	--	3 U	4.1 U	4.2 U	4.1 U	4.1 U	4.1 U
PENTACHLOROPHENOL	UG/L	0.808	13	7.9	20 U	0.81 U	0.82 U	0.8 U	0.8 U	0.81 U
PHENOL	UG/L	1.96	--	--	2.6 U	2 U	2 U	1.9 U	1.9 U	2 U

**Sources*: USEPA 2006. *National Recommended Water Quality Criteria* and Maryland COMAR 26.08.02.03-2

NOTE: Shaded and bold values represent detected concentrations.
MDL = average method detection limit
J = compound was detected, but below the reporting limit (value is estimated)
U = compound was analyzed but not detected

TABLE 4-24. VOLATILE ORGANIC COMPOUND (VOC) CONCENTRATIONS (UG/L) IN SITE WATER AND STANDARD ELUTRIATES

SEAGIRT MARINE TERMINAL, BALTIMORE HARBOR, MARYLAND (JUNE 2006)

ANALYTE	UNITS	MDL	SITE WATER	EA-01/02	EA-03/04	EA-05/06	EA-07/08	EA-09/10
1,1,1-TRICHLOROETHANE	UG/L	0.1	1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,1,2,2-TETRACHLOROETHANE	UG/L	0.19	1.7 U		0.19 U	0.19 U	0.19 U	0.19 U
1,1,2-TRICHLOROETHANE	UG/L	0.22	0.57 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
1,1-DICHLOROETHANE	UG/L	0.15	0.86 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
1,1-DICHLOROETHENE	UG/L	0.43	1.2 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
1,2-DICHLOROBENZENE	UG/L	1.32	7 U	1.3 U	1.4 U	1.3 U	1.3 U	1.3 U
1,2-DICHLOROETHANE	UG/L	0.11	0.56 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
1,2-DICHLOROPROPANE	UG/L	0.28	1.3 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
1,3-DICHLOROBENZENE	UG/L	1.26	4.9 U	1.3 U	1.3 U	1.2 U	1.2 U	1.3 U
1,4-DICHLOROBENZENE	UG/L	1.3	4.9 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
2-BUTANONE (MEK)	UG/L	1.2	2.3 U	**7.3**	1.2 U	**2.3 J**	**1.6 J**	**1.5 J**
ACROLEIN	UG/L	20	59 U	20 U	20 U	20 U	20 U	20 U
ACRYLONITRILE	UG/L	10	11 U	10 U	10 U	10 U	10 U	10 U
BENZENE	UG/L	0.18	1.3 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
BROMODICHLOROMETHANE	UG/L	0.16	0.78 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
BROMOFORM	UG/L	0.21	2.2 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
BROMOMETHANE	UG/L	0.3	1.4 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
CARBON TETRACHLORIDE	UG/L	0.15	0.58 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
CHLOROETHANE	UG/L	0.27	3.7 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
CHLOROFORM	UG/L	0.11	0.73 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
CHLOROMETHANE	UG/L	0.093	1 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U
CIS-1,3-DICHLOROPROPENE	UG/L	0.14	0.95 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
DIBROMOCHLOROMETHANE	UG/L	0.22	1.9 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
DICHLORODIFLUOROMETHANE	UG/L	0.16	1.6 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
ETHYLBENZENE	UG/L	0.15	1.7 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
METHYLENE CHLORIDE	UG/L	0.13	1.1 U	**10**	**4.7**	**8.2**	**3.7**	**5.2**
TETRACHLOROETHENE	UG/L	0.14	0.66 U	0.14 U	0.14 U	**0.15 J**	0.14 U	0.14 U
TOLUENE	UG/L	0.11	0.61 U	**0.14 J**	0.11 U	**0.15 J**	0.11 U	0.11 U
TRANS-1,2-DICHLOROETHENE	UG/L	0.23	1.2 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
TRANS-1,3-DICHLOROPROPENE	UG/L	0.15	0.28 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
TRICHLOROETHENE	UG/L	0.2	1.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRICHLOROFLUOROMETHANE	UG/L	0.14	1.3 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
VINYL CHLORIDE	UG/L	0.14	1.1 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U

NOTE: Shaded and bold values represent detected concentrations.

MDL = average method detection limit

J = compound was detected, but below the reporting limit

U = compound was analyzed but not detected

5. COMPARISON OF PROPOSED BORROW MATERIAL FROM SEAGIRT MARINE TERMINAL TO RESULTS FROM SAMPLING AT MASONVILLE

Results of the sediment, site water, and standard elutriate analyses were compared to results of previous studies conducted at Masonville (EA 2006a) to see if the proposed borrow material is of sufficient quality to be used in containment dike construction. Results were also compared to average concentrations from the Baltimore Harbor and Upper Chesapeake Bay approach channels (EA 2006a, 2006b, 2000a, 2000b), which are representative of surficial sediments in the navigation channels designated for maintenance dredging. The Seagirt sediment and elutriate data for sample EA-01/02 was considered independently of samples EA-03 to EA-10 because of the high fines content in sample EA-01/02. This high contents may be the result of location EA-02 being too close to the edge of one of the sand source areas within the Seagirt dredging area.

5.1 SEDIMENT COMPARISON

Figures 5-1 through 5-10 compare average sediment concentrations from the proposed borrow material to surficial and subsurface sediment samples from the proposed Masonville DMCF project area, surficial samples from Masonville Cove the Baltimore Harbor Channel average, the Upper Chesapeake Bay approach channels average, and the TEL/PEL values for several constituents. Average concentrations of several metals (arsenic, chromium, copper, lead, mercury, nickel, and zinc), total PAHs (ND = ½ MDL), total PCBs (ND = ½ MDL), and the dioxin TEQ (ND = ½ RL) were compared. For this comparison, sample EA-01/02 (referred to as Seagirt site 01/02) was considered independently of the samples EA-03/04, EA-05/06, EA-07/08, and EA-09/10 (referred to as Seagirt sites 03 to 10) because it was comprised of 42.4 percent fine-grained material. In order for the material to be considered for use in the construction of the containment dikes at the Masonville DMCF, the content of the fine-grained sediment in the proposed borrow material should be lower than approximately 30 percent.

For all constituents considered, the proposed borrow material from site 01/02 and from the average of the other four Seagirt samples contained lower concentrations of contaminants than the surficial sediment samples from both Masonville and Masonville Cove (Figures 5-1 to 5-10).

The Seagirt material from sites 03 to 10 contained lower average concentrations of the constituents considered than the Masonville subsurface samples for all constituents except total PCBs (ND=1/2DL) (Figures 5-1 to 5-10). The material from Seagirt Site 01/02 contains greater concentrations of arsenic, chromium, copper, lead, and total PCBs (ND=1/2DL) than the Masonville subsurface (borrow) samples (Figures 5-1, 5-2, 5-3, 5-4, 5-9). The Seagirt samples from Site 01/02, the average of Sites 03 to 10 and the Masonville subsurface samples were below the Upper Bay Channel average for all constituents except chromium (Seagirt Site 01/02) and dioxins (Masonville borrow) (Figures 5-1 to 5-10). The Seagirt sample from Site 01/02 exceeded the TEL for chromium and copper (Figure 5-2); there were no other exceedances of the TEL or PEL for the Seagirt samples or the Masonville subsurface samples.

In general, the quality of the Seagirt sand and gravel from Sites 03 to 10 was similar to or better than that of the Masonville borrow. The Seagirt sand/gravel quality (Sites 03 to 10) is generally better than the surficial sediment quality in the Harbor channels, which will be placed at the site, and for most

constituents the Seagirt sand and gravel (Sites 03-10) quality was comparable to the better quality sediments found in the Upper Bay channels.

5.2 SITE WATER AND ELUTRIATE COMPARISON

The site water and standard elutriate results for the proposed borrow material were compared to site water and standard elutriates created using: 1) surficial from the proposed Masonville DMCF project area, 2) subsurface sediment from the proposed Masonville DMCF project area, 3) sediment from the Baltimore Harbor Channels, 4) sediments from the Upper Chesapeake Bay approach channels, 5) the USEPA and State of Maryland acute and chronic water quality criteria for the protection of aquatic life, and 6) standard elutriates from the *Comprehensive Harbor Assessment and Regional Modeling Study* (CHARMS) (Baker et. al 2003) (Figures 5-11 through 5-22). Average concentrations of several metals (arsenic, chromium, copper, lead, mercury, nickel, and zinc), total PAHs (ND = ½ MDL), total PCBs (ND = ½ MDL), and the dioxin TEQ (ND = ½ RL) were compared. For this comparison, sample EA-01/02 (referred to as Seagirt site 01/02) was considered independently of the samples EA-03/04, EA-05/06, EA-07/08, and EA-09/10 (referred to as Seagirt sites 03 to 10) because it was comprised of 42.4 percent fine-grained material. In order for the material to be considered for use in the construction of the containment dikes at the Masonville DMCF, the content of the fine-grained sediment in the proposed borrow material should be lower than 30 percent.

For the site water samples, the proposed borrow material contained higher average concentrations than both Masonville site water samples for 10 of the 11 constituents considered (Figures 5-13 to 5-22). The Seagirt site water samples contained lower concentrations of total PCBs (ND=1/2DL) than the Masonville subsurface site water sample and higher concentrations of total PCBs (ND=1/2DL) than the Masonville surficial site water sample (Figure 5-22). The Seagirt site water samples exceeded both the USEPA acute and chronic criteria for copper and the USEPA chronic criteria for lead. The Masonville surficial site water sample exceeded the USEPA chronic criteria for copper. The Masonville subsurface site water sample exceeded the USEPA chronic criteria for total PCBs (ND=1/2DL).

For the Seagirt elutriate analysis for metals, the original analysis results and the reanalysis results were averaged together. This average value was used for comparison purposes. All three nickel elutriate values for site EA-01/02 were averaged together for comparison. For the elutriate samples, both Seagirt sites (01/02 and 03 to 10) contained higher average concentrations than both Masonville samples (surficial and subsurface) for 6 of the 10 constituents considered [arsenic, copper, chromium, nickel, zinc, and Dioxin TEQs (ND=1/2DL)] (Figures 5-13 to 5-22). Both Seagirt sites had lower average concentrations for total PCBs (ND=1/2DL), total PAHs (ND=0), and lead than both Masonville samples (Figures 5-16, 5-20, and 5-21). Both Seagirt sites had higher average concentrations of mercury than the Masonville subsurface sample, but lower concentrations of mercury than the Masonville surficial sample (Figure 5-17). Table 5-1 shows the samples that contained higher concentrations of the constituents considered than the Upper Bay Channel average.

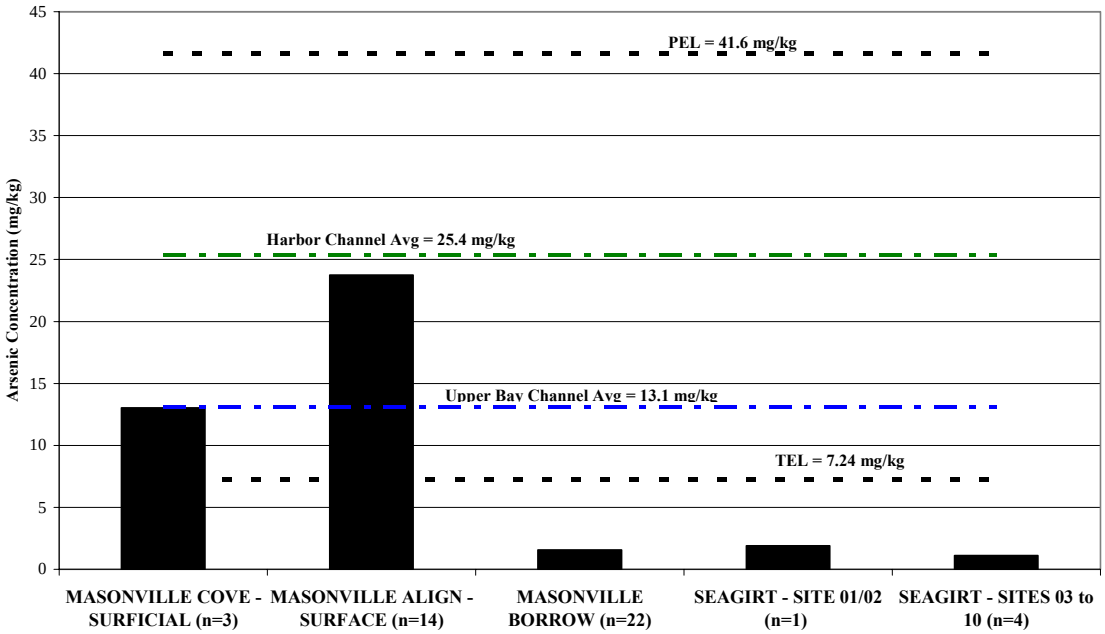
Mean copper concentrations exceeded the USEPA chronic criteria for the Masonville surficial site water sample and in the Seagirt site 01/02 samples (Figure 5-14). The mean of the Seagirt site water samples exceeded the USEPA acute criteria (Figure 5-14). Mean nickel concentrations exceeded the acute criteria for Seagirt Site 01/02 and the chronic criteria for Seagirt Sites 03 to 10 (Figure 5-18). Mean

zinc concentrations exceeded the USEPA acute criteria for Site 01/02 (Figure 5-19). Constituents above the Upper Bay Channel averages are shown in Table 5-1.

Although a poor quality site water sample appeared to be driving some of the results, the reanalysis indicated that in one area, (Site 01/02 in the southern reach of the Dundalk West Seagirt approach channel) nickel and zinc were elevated in the elutriates. Nickel exceeded the US EPA acute criterion at this location. This is likely being driven by the higher percentage of fines at this location. Because the Masonville elutriates were relatively free of contaminants, the materials at Seagirt Station 01/02 would not meet the criteria of Least Environmentally Damaging Practicable Alternative and will not be used to build the Masonville dikes unless/until the area with elevated metals can be more clearly identified and avoided.

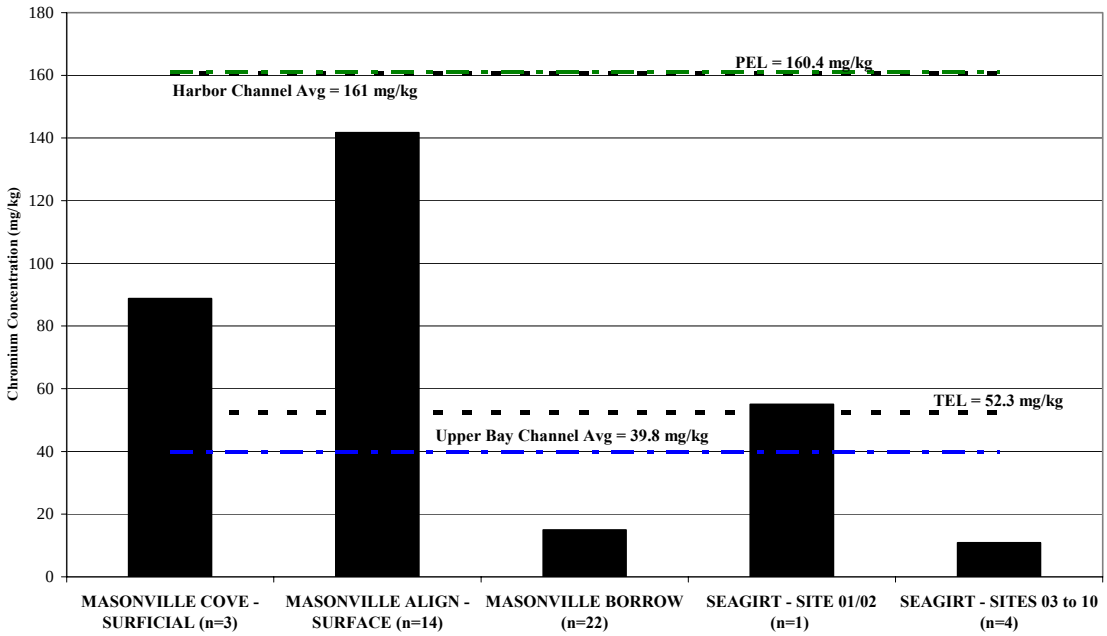
5.3 Conclusions Based on Comparisons to Masonville Sediment Quality and Harbor and Bay Averages

Based on the comparisons described above, the material from Seagirt borrow locations EA-03 through EA-10 are environmentally suitable for use during the dike construction at Masonville. The material from the vicinity of locations EA-01 and EA-02 may not be suitable for in-water placement. Samples collected at location EA-02 may have been too close to the edge of the borrow area, which may have resulted in the relatively high percent of silts and clay and higher concentrations of analytes during elutriate testing. Based on the testing completed, the material from locations EA-01 and EA-02 is not recommended for construction of the Masonville dikes unless/until the area with elevated fines and metals can be more clearly identified.



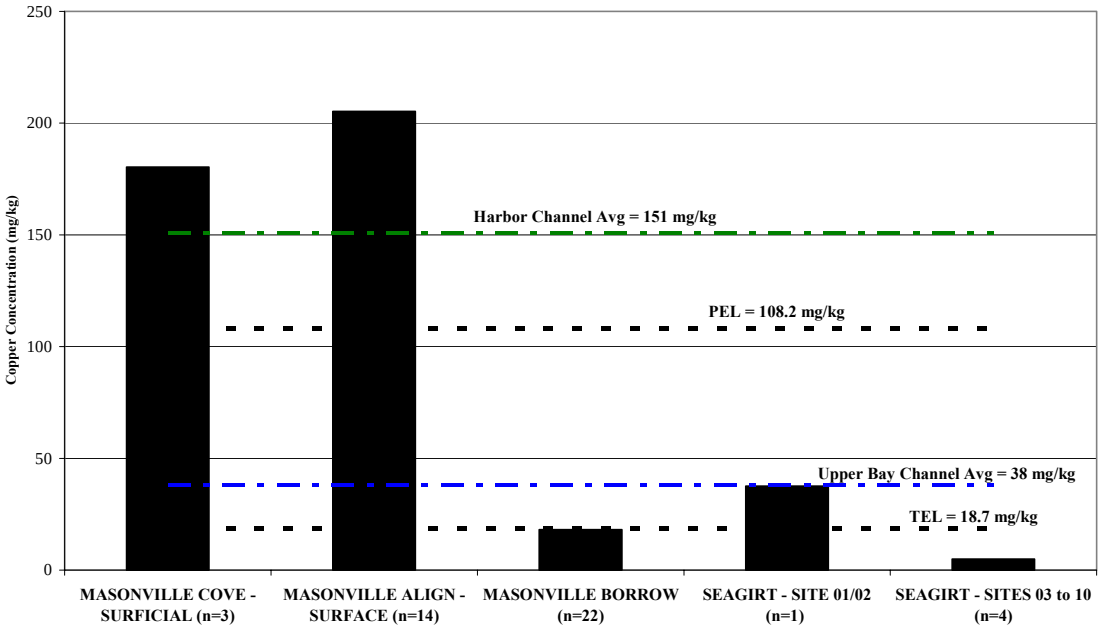
Mean arsenic concentrations from sediment samples colleted from within the proposed Masonville DMCF alignment, Masonville Cove, and the Seagirt dredging area compared to the Threshold Effect Level (TEL) and Probable Effects Level (PEL) screening criteria (MacDonald et al. 1996). Average surface sediment arsenic concentrations from Baltimore Harbor (n=113) and the Upper Chesapeake Bay Approach Channels (n=159) (EA 2006, 2000a, 2000b and EA unpublished data) are also presented for comparison.

Figure 5-1. Arsenic Concentrations in Sediment Samples



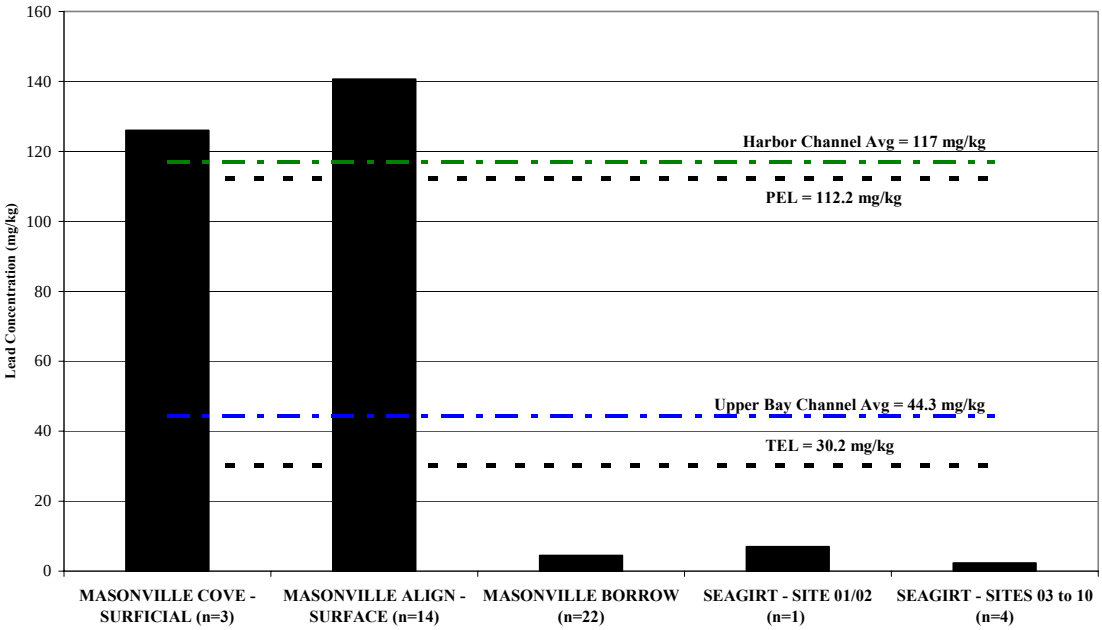
Mean chromium concentrations from sediment samples collected from within the proposed Masonville DMCF alignment, Masonville Cove, and the Seagirt dredging area compared to the Threshold Effect Level (TEL) and Probable Effects Level (PEL) screening criteria (MacDonald et al. 1996). Average surface sediment chromium concentrations from Baltimore Harbor (n=113) and the Upper Chesapeake Bay Approach Channels (n=159) (EA 2006, 2000a, 2000b and EA unpublished data) are also presented for comparison.

Figure 5-2. Chromium Concentrations in Sediment Samples



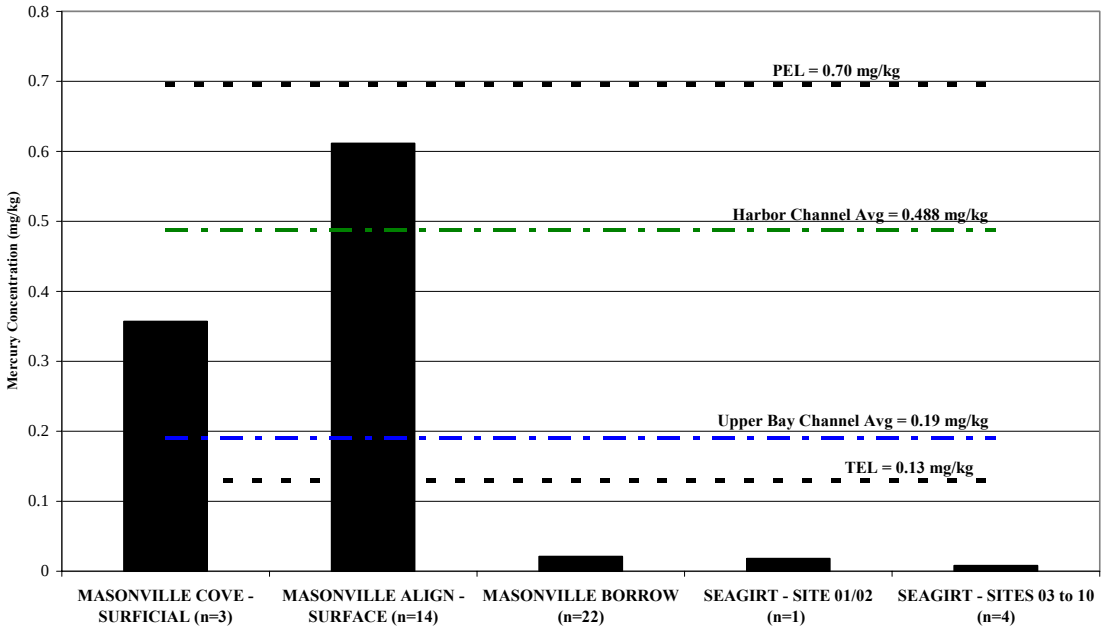
Mean copper concentrations from sediment samples colleted from within the proposed Masonville DMCF alignment, Masonville Cove, and the Seagirt dredging area compared to the Threshold Effect Level (TEL) and Probable Effects Level (PEL) screening criteria (MacDonald et al. 1996). Average surface sediment copper concentrations from Baltimore Harbor (n=113) and the Upper Chesapeake Bay Approach Channels (n=159) (EA 2006, 2000a, 2000b and EA unpublished data) are also presented for comparison.

Figure 5-3. Copper Concentrations in Sediment Samples



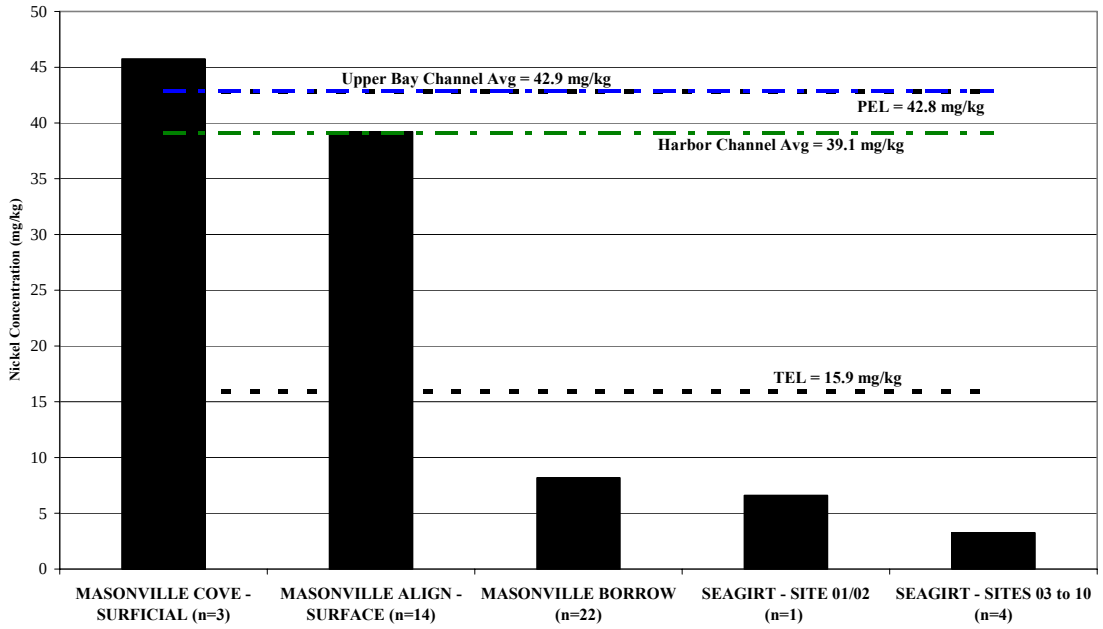
Mean lead concentrations from sediment samples colleted from within the proposed Masonville DMCF alignment, Masonville Cove, and the Seagirt dredging area compared to the Threshold Effect Level (TEL) and Probable Effects Level (PEL) screening criteria (MacDonald et al. 1996). Average surface sediment lead concentrations from Baltimore Harbor (n=113) and the Upper Chesapeake Bay Approach Channels (n=159) (EA 2006, 2000a, 2000b and EA unpublished data) are also presented for comparison.

Figure 5-4. Lead Concentrations in Sediment Samples



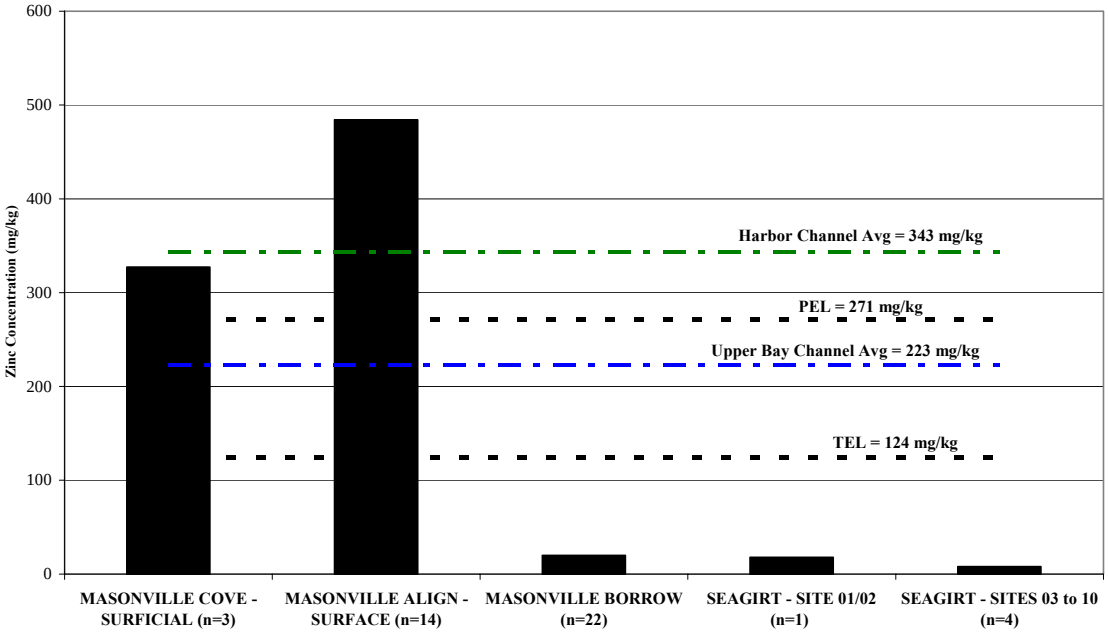
Mean mercury concentrations from sediment samples colleted from within the proposed Masonville DMCF alignment, Masonville Cove, and the Seagirt dredging area compared to the Threshold Effect Level (TEL) and Probable Effects Level (PEL) screening criteria (MacDonald et al. 1996). Average surface sediment mercury concentrations from Baltimore Harbor (n=113) and the Upper Chesapeake Bay Approach Channels (n=159) (EA 2006, 2000a, 2000b and EA unpublished data) are also presented for comparison.

Figure 5-5. Mercury Concentrations in Sediment Samples



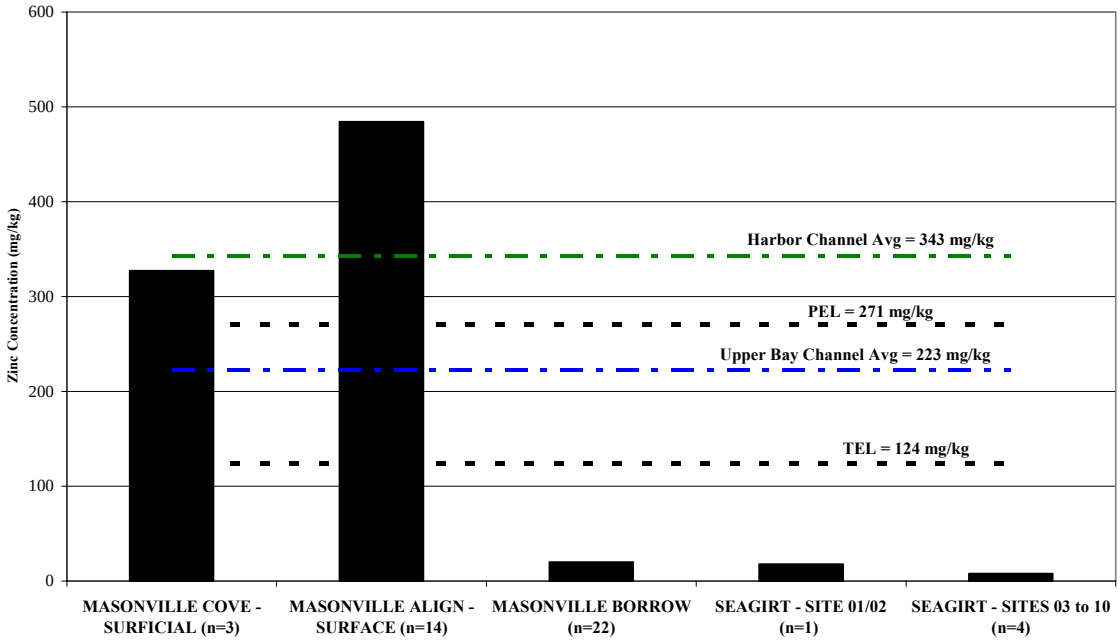
Mean nickel concentrations from sediment samples collected from within the proposed Masonville DMCF alignment, Masonville Cove, and the Seagirt dredging area compared to the Threshold Effect Level (TEL) and Probable Effects Level (PEL) screening criteria (MacDonald et al. 1996). Average surface sediment nickel concentrations from Baltimore Harbor (n=113) and the Upper Chesapeake Bay Approach Channels (n=159) (EA 2006, 2000a, 2000b and EA unpublished data) are also presented for comparison.

Figure 5-6. Nickel Concentrations in Sediment Samples



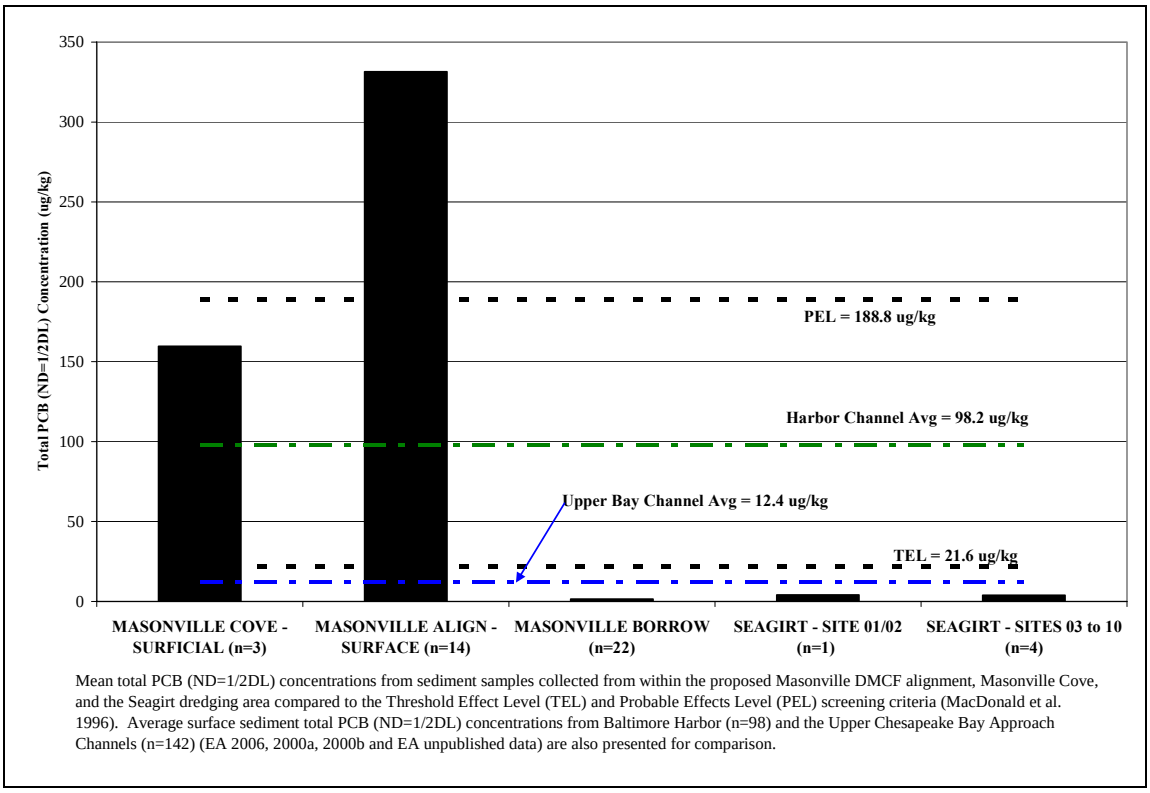
Mean zinc concentrations from sediment samples colleted from within the proposed Masonville DMCF alignment, Masonville Cove, and the Seagirt dredging area compared to the Threshold Effect Level (TEL) and Probable Effects Level (PEL) screening criteria (MacDonald et al. 1996). Average surface sediment zinc concentrations from Baltimore Harbor (n=113) and the Upper Chesapeake Bay Approach Channels (n=159) (EA 2006, 2000a, 2000b and EA unpublished data) are also presented for comparison.

Figure 5-7. Zinc Concentrations in Sediment Samples



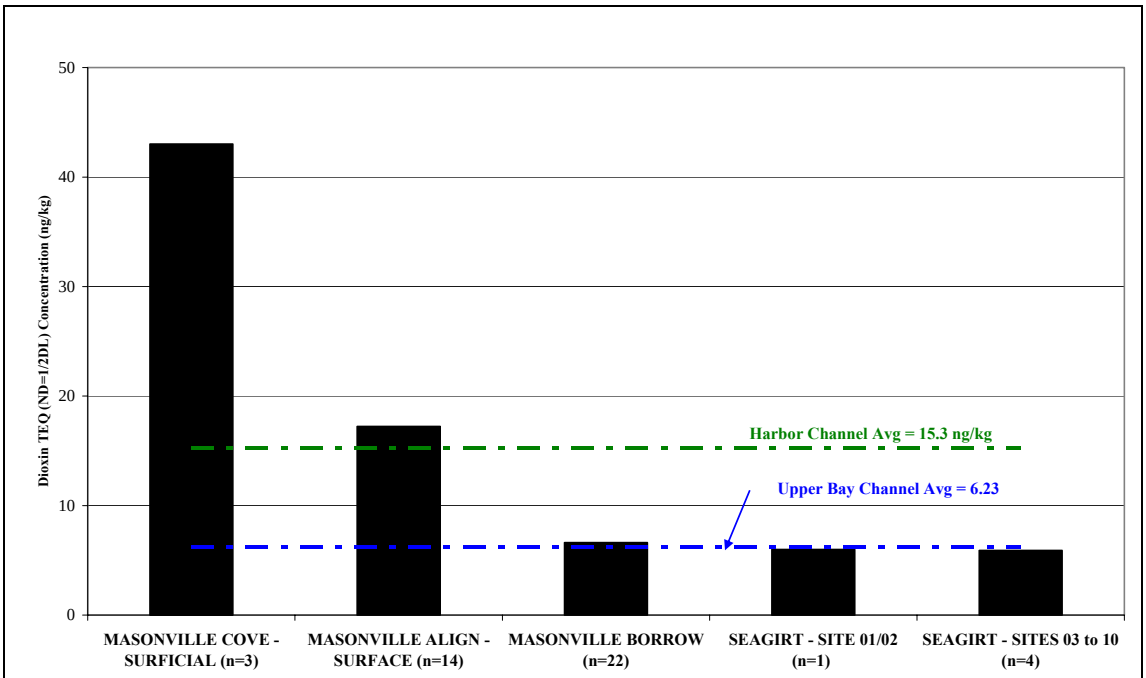
Mean zinc concentrations from sediment samples collected from within the proposed Masonville DMCF alignment, Masonville Cove, and the Seagirt dredging area compared to the Threshold Effect Level (TEL) and Probable Effects Level (PEL) screening criteria (MacDonald et al. 1996). Average surface sediment zinc concentrations from Baltimore Harbor (n=113) and the Upper Chesapeake Bay Approach Channels (n=159) (EA 2006, 2000a, 2000b and EA unpublished data) are also presented for comparison.

Figure 5-8. Total PAH (ND=1/2MDL) Concentrations in Sediment Samples



Mean total PCB (ND=1/2DL) concentrations from sediment samples collected from within the proposed Masonville DMCF alignment, Masonville Cove, and the Seagirt dredging area compared to the Threshold Effect Level (TEL) and Probable Effects Level (PEL) screening criteria (MacDonald et al. 1996). Average surface sediment total PCB (ND=1/2DL) concentrations from Baltimore Harbor (n=98) and the Upper Chesapeake Bay Approach Channels (n=142) (EA 2006, 2000a, 2000b and EA unpublished data) are also presented for comparison.

Figure 5-9. Total PCB (ND=1/2MDL) Concentrations in Sediment Samples



Mean dioxin TEQ (ND=1/2DL) concentrations from sediment samples collected from within the proposed Masonville DMCF alignment, Masonville Cove, and the Seagirt dredging area. Average surface sediment dioxin TEQ (ND=1/2DL) from Baltimore Harbor (n=21) and the Upper Chesapeake Bay Approach Channels (n=35) (EA 2006, 2000a, 2000b and EA unpublished data) are also presented for comparison.
NOTE: There are no PEL or TEL values for dioxins.

Figure 5-10. Dioxin TEQ (ND=1/2RL) Concentrations in Sediment Samples

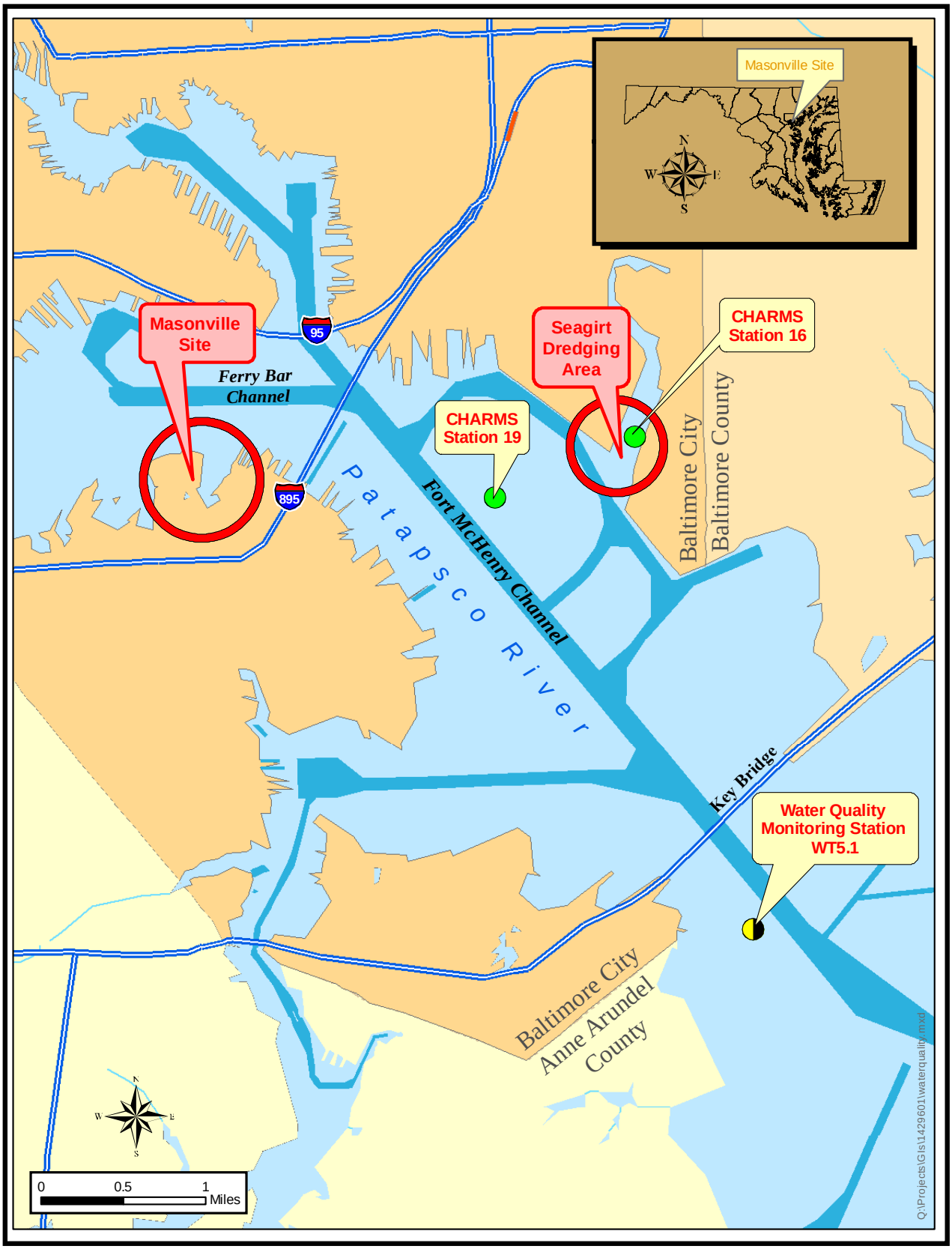


Figure 5-11. CHARMS Study Locations

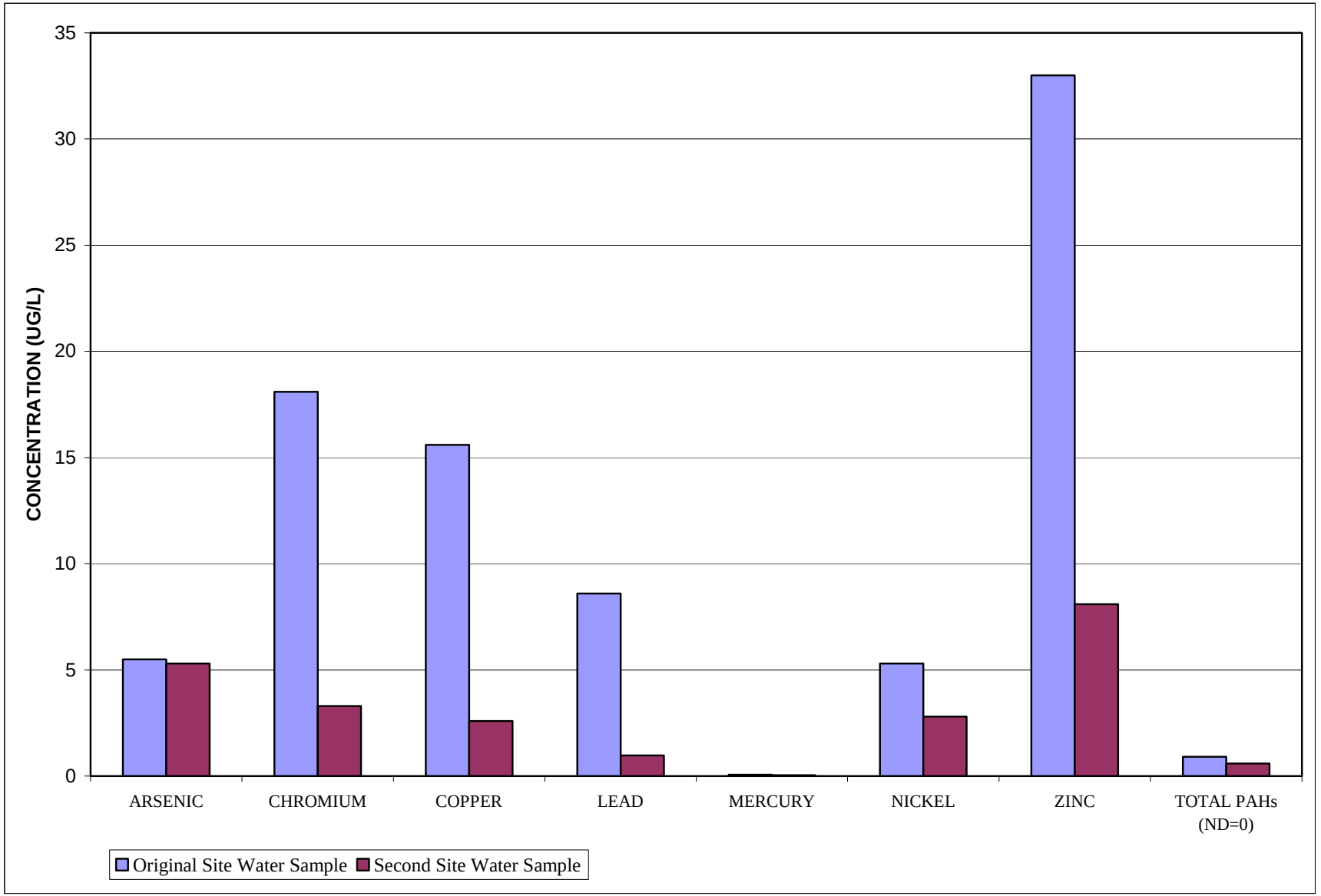


Figure 5-12a. Comparison of Seagirt Site Water Samples

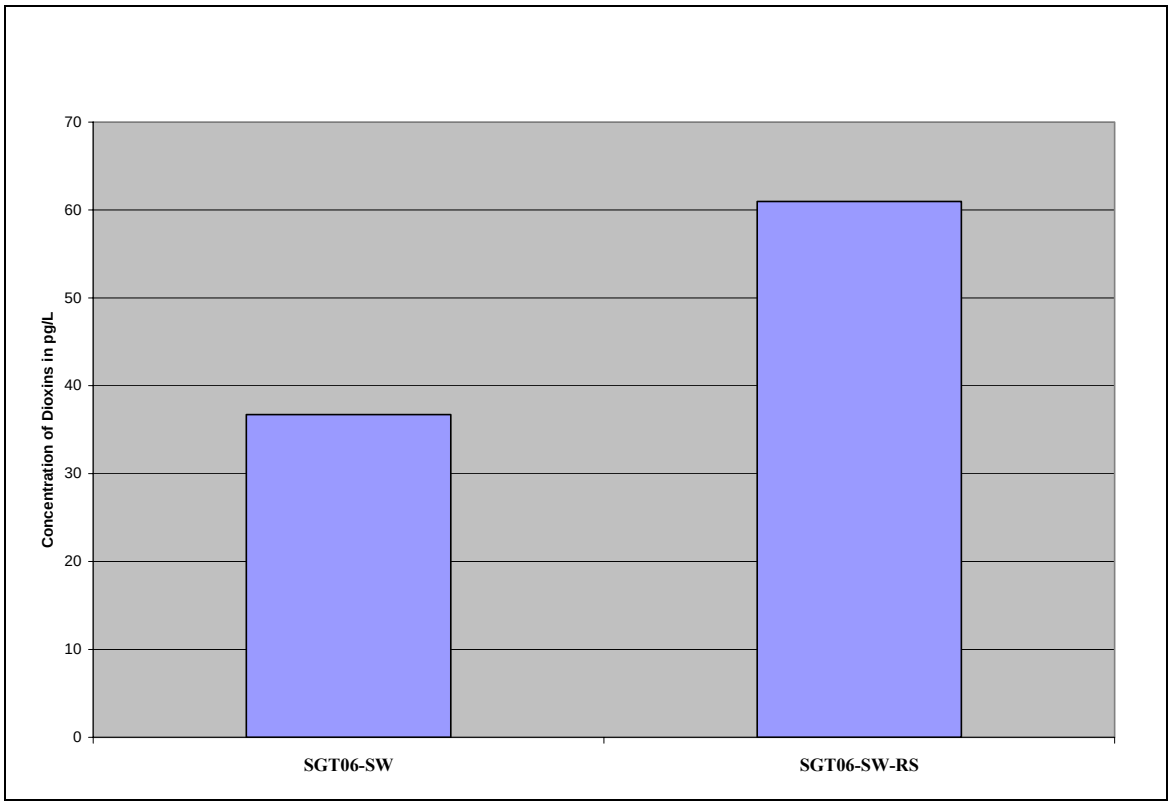


Figure 5-12b. Comparison of Seagirt Site Water Samples (Continued).

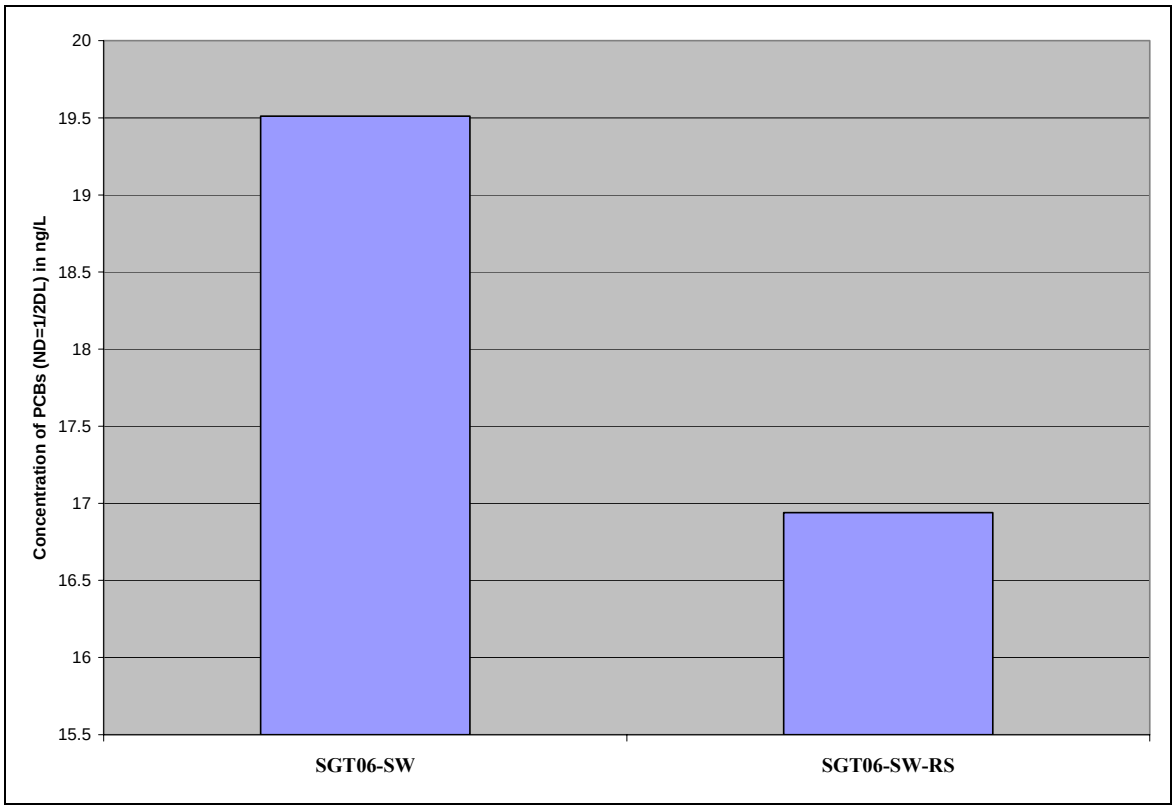
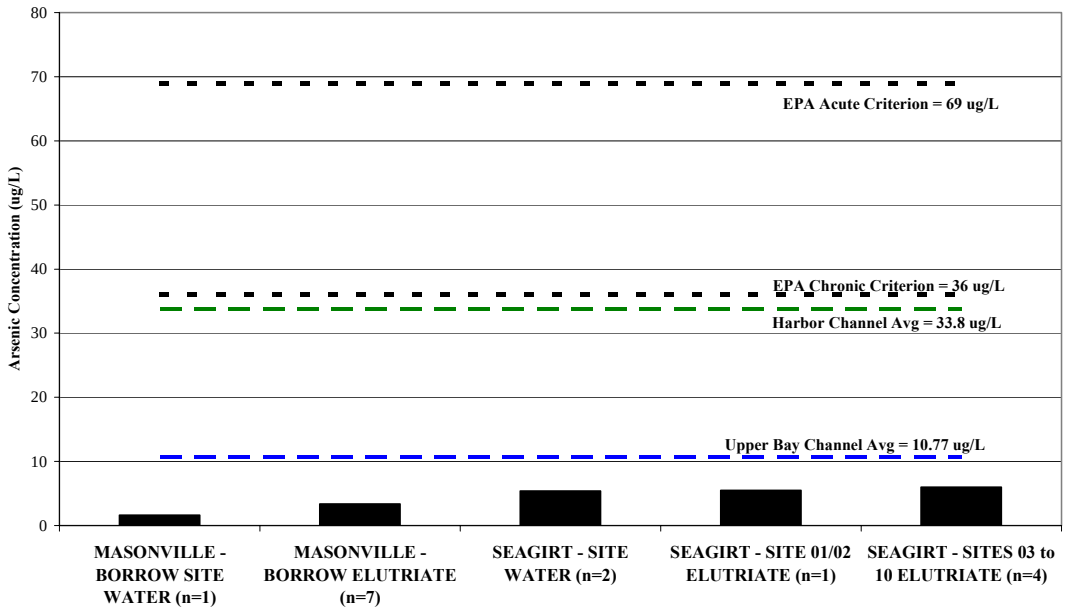
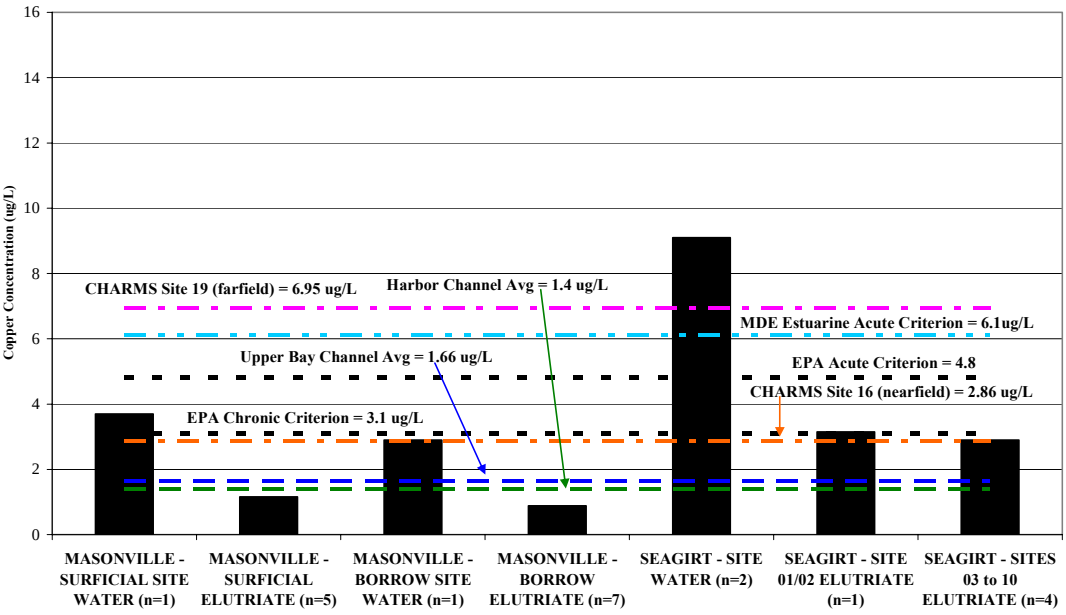


Figure 5-12c. Comparison of Seagirt Site Water Samples (Continued).



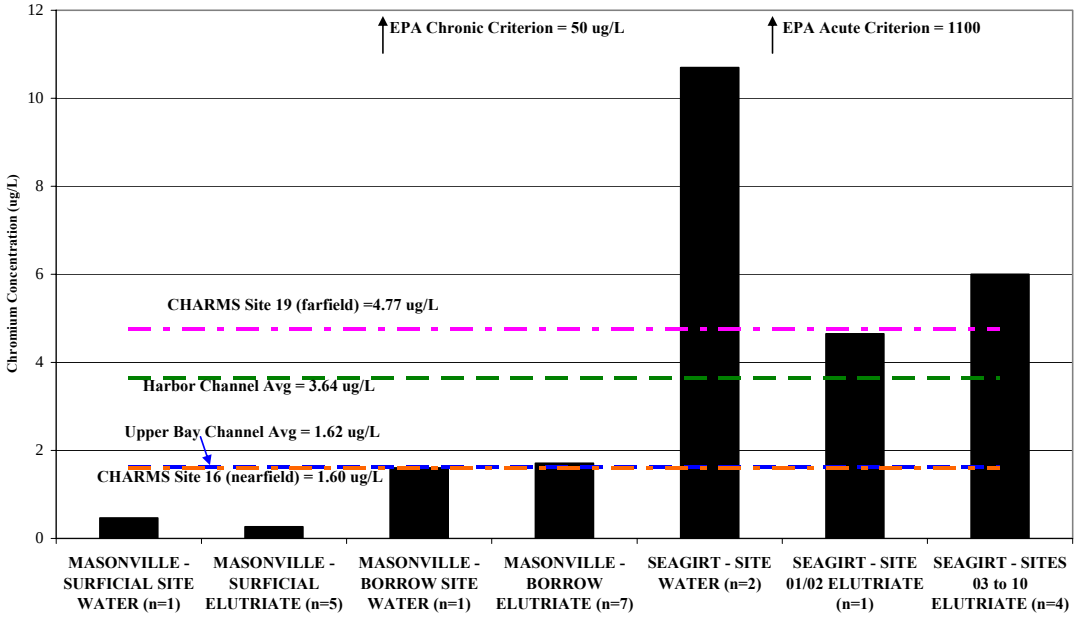
Mean arsenic concentrations from elutriate samples collected from within the proposed Masonville DMCF alignment and the Seagirt dredging area compared to the EPA acute and chronic criteria (USEPA 2004). Average elutriate arsenic concentrations from Baltimore Harbor (n=6) and the Upper Chesapeake Bay Approach Channels (n=21) (EA 1999 and preliminary unpublished data) are also presented for comparison.

Figure 5-13. Arsenic Concentrations in Site Water and Elutriate Samples



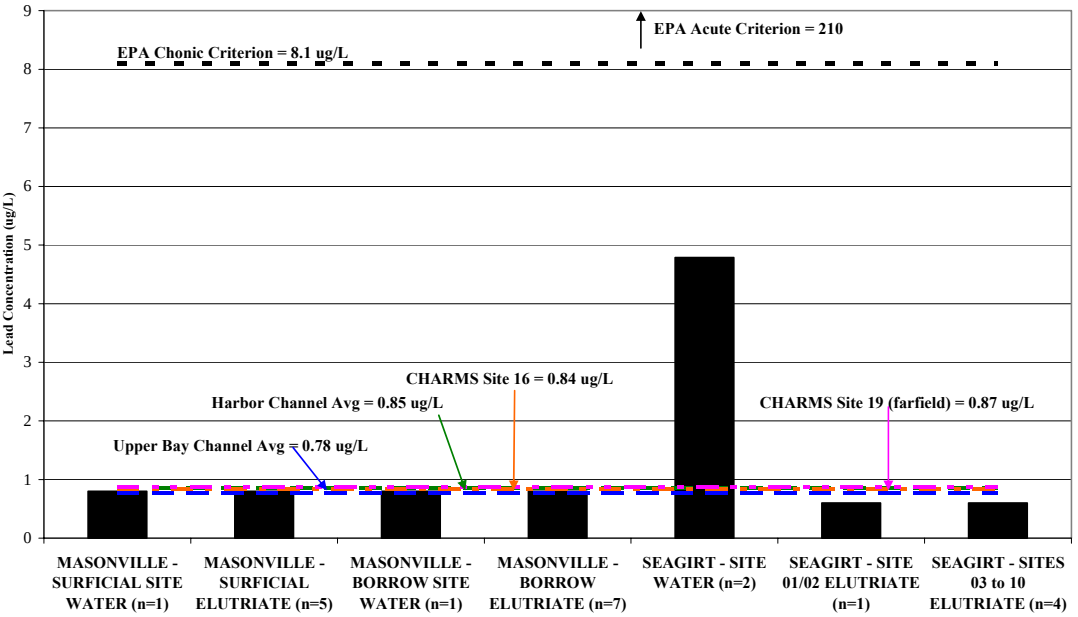
Mean copper concentrations from elutriate samples collected from within the proposed Masonville DMCF alignment and the Seagirt dredging area compared to the EPA acute and chronic criteria. Average elutriate copper concentrations from the CHARMS study (n=4 for each site), the Baltimore Harbor (n=6) and the Upper Chesapeake Bay Approach Channels (n=21) (EA 1999 and preliminary unpublished data) are also presented for comparison.

Figure 5-14. Copper Concentrations in Site Water and Elutriate Samples



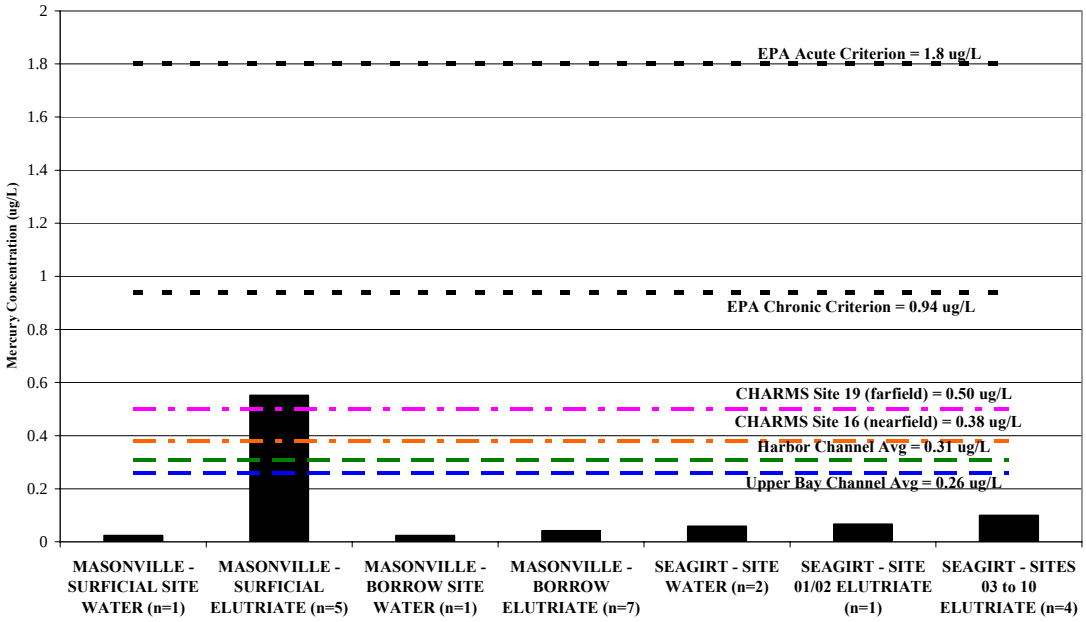
Mean chromium concentrations from elutriate samples collected from within the proposed Masonville DMCF alignment and the Seagirt dredging area compared to the EPA acute and chronic criteria (USEPA 2004). Average elutriate chromium concentrations from the CHARMS study (n=4 for each site), the Baltimore Harbor (n=6) and the Upper Chesapeake Bay Approach Channels (n=21) (EA 1999 and preliminary unpublished data) are also presented for comparison.

5-15. Chromium Concentrations in Site Water and Elutriate Samples



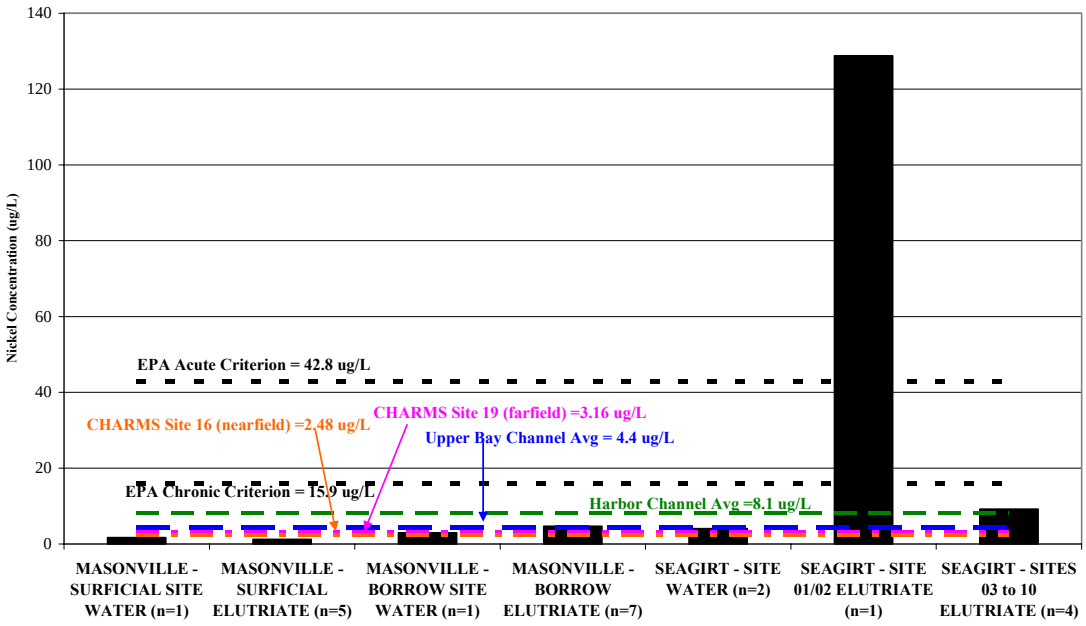
Mean lead concentrations from elutriate samples collected from within the proposed Masonville DMCF alignment and the Seagirt dredging area compared to the EPA acute and chronic criteria (USEPA 2004). Average elutriate lead concentrations from the CHARMS study (n=4 for each site), the Baltimore Harbor (n=6) and the Upper Chesapeake Bay Approach Channels (n=21) (EA 1999 and preliminary unpublished data) are also presented for comparison.

Figure 5-16. Lead Concentrations in Site Water and Elutriate Samples



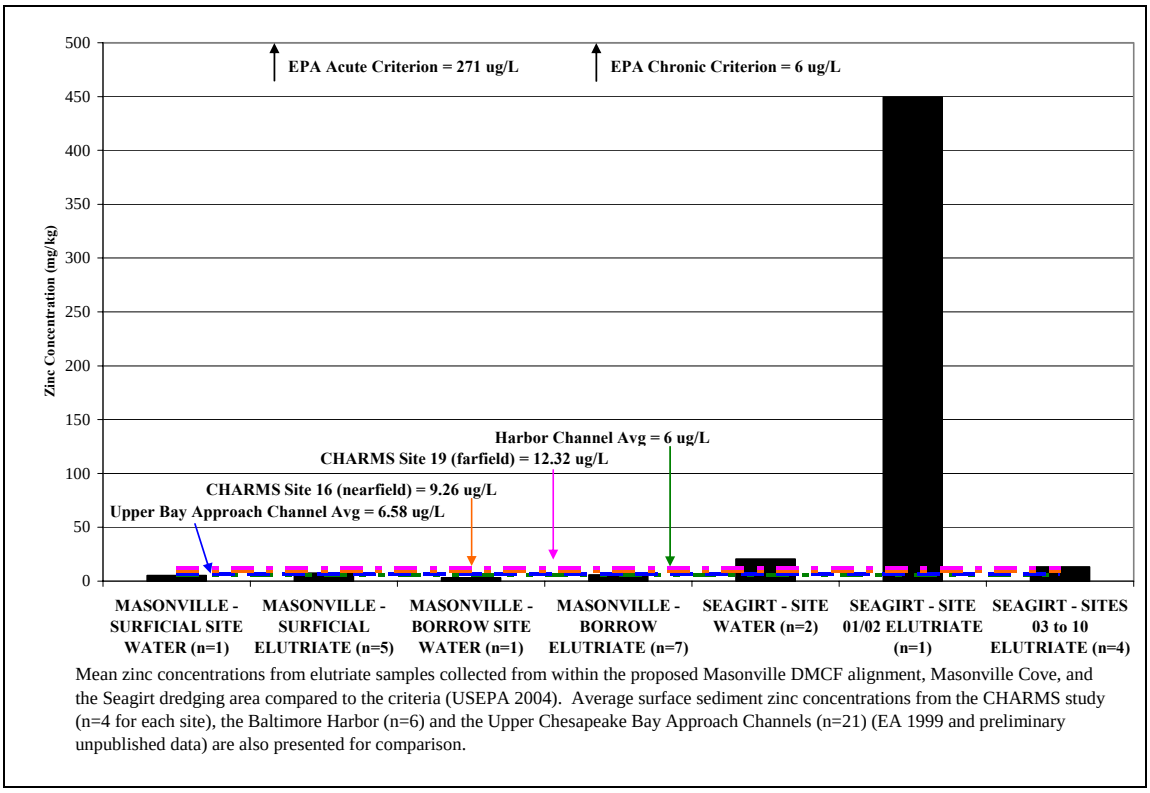
Mean mercury concentrations from elutriate samples collected from within the proposed Masonville DMCF alignment and the Seagirt dredging area compared to the EPA acute and chronic criteria (USEPA 2004). Average elutriate mercury concentrations from the CHARMS study (n=1 for each site), the Baltimore Harbor (n=6) and the Upper Chesapeake Bay Approach Channels (n=21) (EA 1999 and preliminary unpublished data) are also presented for comparison.

Figure 5-17. Mercury Concentrations in Site Water and Elutriate Samples



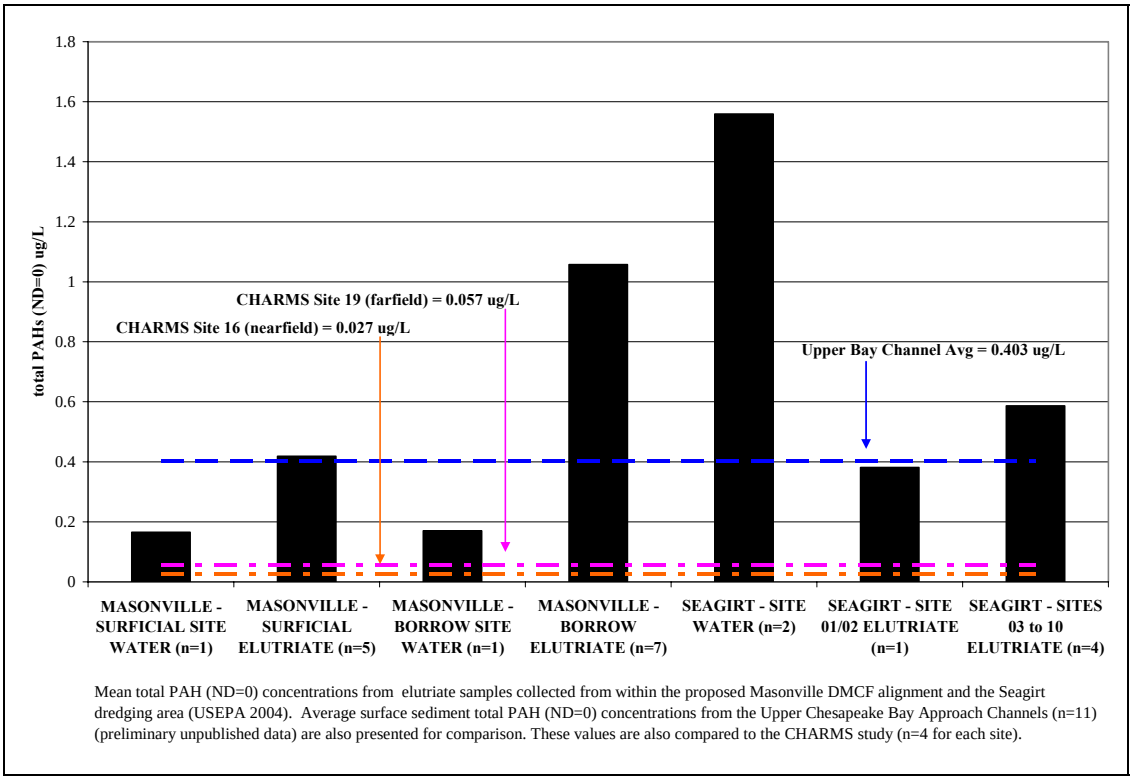
Mean nickel concentrations from elutriate samples collected from within the proposed Masonville DMCF alignmentand the Seagirt dredging area compared to the EPA acute and chronic criteria (USEPA 2004). Average elutriate nickel concentrations from the CHARMS study (n=4 for each site), the Baltimore Harbor (n=6) and the Upper Chesapeake Bay Approach Channels (n=21) (EA 1999 and preliminary unpublished data) are also presented for comparison.

Figure 5-18. Nickel Concentrations in Site Water and Elutriate Samples



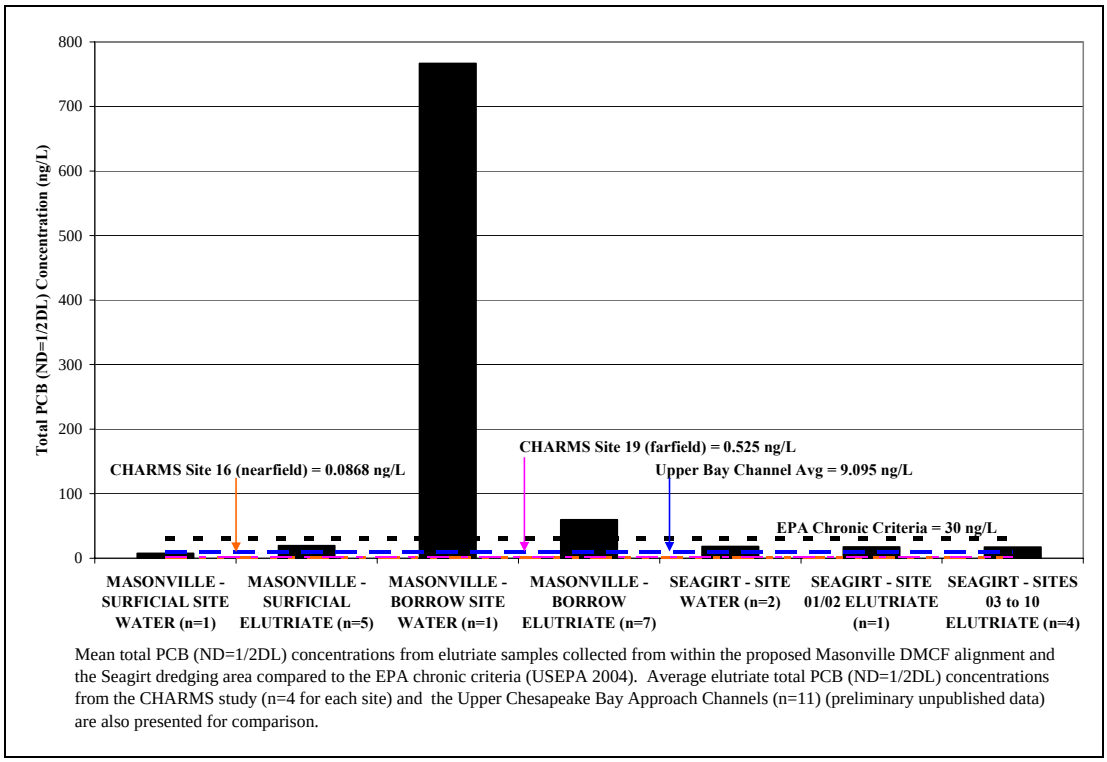
Mean zinc concentrations from elutriate samples collected from within the proposed Masonville DMCF alignment, Masonville Cove, and the Seagirt dredging area compared to the criteria (USEPA 2004). Average surface sediment zinc concentrations from the CHARMS study (n=4 for each site), the Baltimore Harbor (n=6) and the Upper Chesapeake Bay Approach Channels (n=21) (EA 1999 and preliminary unpublished data) are also presented for comparison.

Figure 5-19. Zinc Concentrations in Site Water and Elutriate Samples



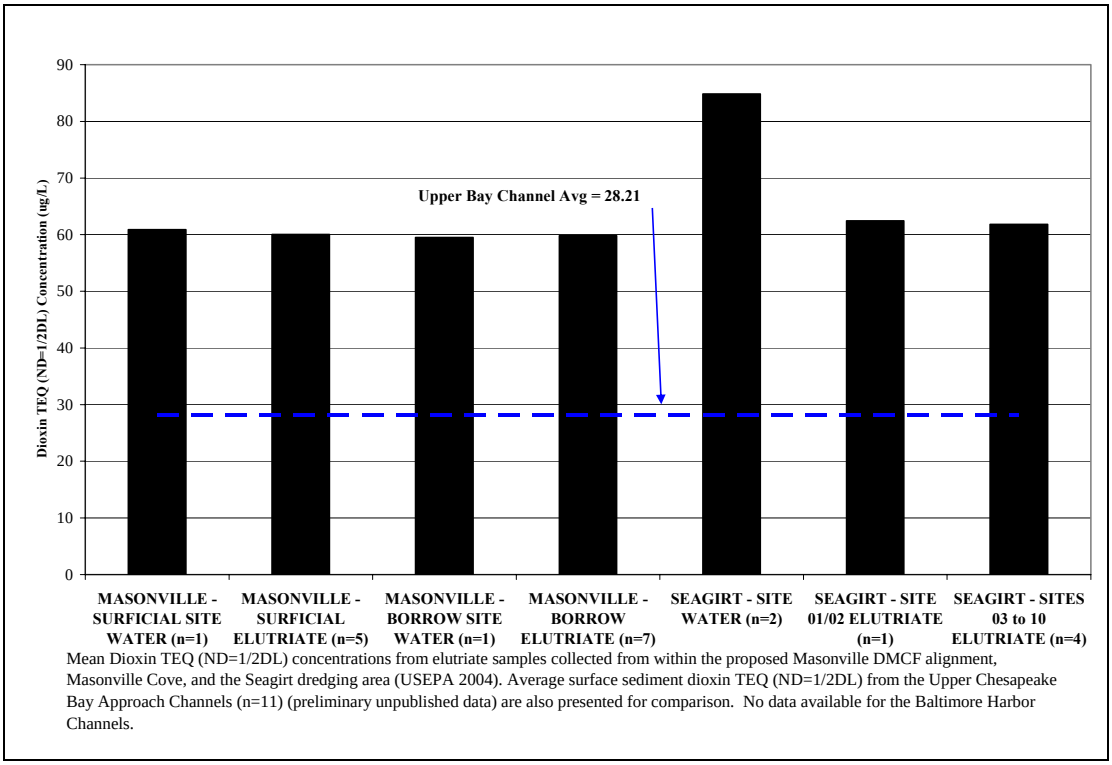
Mean total PAH (ND=0) concentrations from elutriate samples collected from within the proposed Masonville DMCF alignment and the Seagirt dredging area (USEPA 2004). Average surface sediment total PAH (ND=0) concentrations from the Upper Chesapeake Bay Approach Channels (n=11) (preliminary unpublished data) are also presented for comparison. These values are also compared to the CHARMS study (n=4 for each site).

Figure 5-20. Total PAH (ND=0) Concentrations in Site Water and Elutriate Samples



Mean total PCB (ND=1/2DL) concentrations from elutriate samples collected from within the proposed Masonville DMCF alignment and the Seagirt dredging area compared to the EPA chronic criteria (USEPA 2004). Average elutriate total PCB (ND=1/2DL) concentrations from the CHARMS study (n=4 for each site) and the Upper Chesapeake Bay Approach Channels (n=11) (preliminary unpublished data) are also presented for comparison.

Figure 5-21. Total PCB (ND=1/2MDL) Concentrations in Site Water and Elutriate Samples



Mean Dioxin TEQ (ND=1/2DL) concentrations from elutriate samples collected from within the proposed Masonville DMCF alignment, Masonville Cove, and the Seagirt dredging area (USEPA 2004). Average surface sediment dioxin TEQ (ND=1/2DL) from the Upper Chesapeake Bay Approach Channels (n=11) (preliminary unpublished data) are also presented for comparison. No data available for the Baltimore Harbor Channels.

Figure 5-22. Mean Dioxin TEQ (ND=1/2RL) Concentrations in Site Water and Elutriate Samples

Table 5-1. Concentrations of Constituents Above the Upper Bay Channel Average in Elutriate Samples

	Cr	Cu	Pb	Hg	Ni	Zn	Total PAHs (ND=0)	Total PCBs (ND=1/2DL)	Dioxin TEQ (ND=1/2RL)
Masonville Surficial			X	X		X	X	X	X
Masonville Subsurface	X		X		X		X	X	X
Seagirt Site 01/02	X	X			X	X		X	X
Seagirt Sites 03 to 10	X	X			X	X	X	X	X

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