ARM Group LLC
Engineers and Scientists

July 17, 2020

Ms. Barbara Brown
Project Coordinator
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, MD 21230

Re: Comment Response Letter:
Phase II Investigation Report
Area B: Parcel B23
Tradepoint Atlantic
Sparrows Point, MD 21219

Dear Ms. Brown:

On behalf of EnviroAnalytics Group, LLC (EAG), ARM Group LLC (ARM) is pleased to provide the following responses to comments provided by the Maryland Department of the Environment (MDE) via email on April 13, 2020 regarding the previous submission of the Phase II Investigation Report (Revision 0 dated December 20, 2019) for Parcel B23 (the Site) of the Tradepoint Atlantic property located in Sparrows Point, Maryland. The Phase II Investigation Report is not being resubmitted at this time, but this Comment Response Letter serves as an Addendum to the report. Responses to specific comments are given below; the original comments are included in italics with responses following.

1. *The site is currently used as an active rail yard operated by TPA Rail. It seems like this is going to be the use of this parcel for the foreseeable future. It was apparent during a previous site visit that many employees operate within the parcel, particularly within the area around the locomotive shop. Now that we have soil data for the parcel, a complete SLRA is necessary to determine if there are any requirements to mitigate site conditions for current workers, as well as any future workers that may need to perform ground intrusive work within the parcel. It is noted that this parcel is unlike many of the previously investigated areas of the site, with active workers on-site, though it is similar to Parcels A2 and A4, so the process for completing the investigation for this site needs to be amended to fit the current site status. I'd also like an update as to the use of other buildings within the parcel, including: carpenter shop, oil house, and lumber shed.*

   This document provides the results of the baseline Screening Level Risk Assessment (SLRA) that has been conducted for both the Composite Worker and Construction Worker risk scenarios. A supplemental Composite Worker SLRA is also provided that takes into

account interim remedies that have recently been installed to limit risk for workers currently conducting necessary activities at the Site. The specific interim remedies are discussed in further detail below, and a photograph log showing the remedies is included as **Attachment 1**. The lumber shed and maintenance shop are unmanned storage buildings with infrequent and restricted entry. The locomotive shop, carpenter shop, and oil house buildings remain in place and active.

2. *In addition, there are several areas where PAH's exceed their respective PALs in the shallow 0-1' bgs soil sample. Looking at the soil boring logs, it looks like a significant amount of the site's ground surface is exposed slag/gravel, instead of paved with asphalt or concrete. It would be helpful to get a figure depicting the location of various ground surfaces within the parcel (i.e., gravel/slag/concrete/asphalt/soil).*

   The location of various types of ground surface cover within Parcel B23, including buildings, paved roads, and uncapped ground surfaces (slag and native soils) are shown on **Figure 1** (attached). Note that areas of slag versus native soil were defined using the 1916 shoreline adapted from Figure 2-20 of the Description of Current Conditions (DCC) Report prepared by Rust Environment and Infrastructure, dated January 1998. Field observations were not able to discern differences between slag fill and native soil ground surface coverings.

Screening Level Risk Assessment (SLRA):

The SLRA has been completed for the Composite Worker and Construction Worker risk scenarios to assess current baseline conditions at the Site in accordance with standard and accepted procedures. The baseline SLRA includes data obtained within Parcel B23 during the preceding Phase II Investigation (reported in the Parcel B23 Phase II Investigation Report, Revision 0 dated December 20, 2019), as well as supplemental lead delineation data obtained in the vicinity of soil boring B23-020-SB (reported in the Lead Impacted Soil Supplemental Investigation Report, dated December 20, 2019).

In addition, a Composite Worker SLRA was completed to assess worker conditions following institution of interim remedies at the Site, as described below. The interim remedies consist of temporary capping (using concrete patches or crushed recycled concrete) of areas near soil borings B23-015-SB, B23-016-SB, and B23-034-SB and access restriction (using temporary fencing) of the area surrounding soil boring B23-010-SB. The locations of the interim remedies (as recorded with a hand-held GPS unit) are shown on **Figure 2**. A photograph log showing the remedies is included as **Attachment 1**. Surface soil data from these four locations were not included as part of the SLRA completed to assess worker conditions with the remedies installed. The subsurface soil data remained in the interim remedies risk scenario because access to the subsurface soils is restricted by the overlying surface soils (the remedies do not affect subsurface soil).

Parcel B23 was evaluated as a single site-wide Exposure Unit (EU1). A Constituent of Potential Concern (COPC) screening analysis for EU1 is provided in **Table 1** to identify all compounds above the USEPA's Regional Screening Levels (RSLs) based on the full available dataset from the preceding investigations. The remainder of the SLRA is provided as two separate evaluations for the baseline and interim measures conditions.

The lead averages for surface, subsurface, and pooled soils are presented and compared to the Adult Lead Model (ALM) risk-based screening levels in **Table 2a** (baseline) and **Table 2b** (interim measures). As provided in the tables, neither surface, subsurface, nor pooled soils exceeded an average lead value of 800 mg/kg (the RSL) or the secondary limit of 2,518 mg/kg based on the May 2017 updated ALM developed by the USEPA (corresponding to a 5% probability of a blood lead level of 10 ug/dL). This is true for both baseline and interim measures conditions. A lead evaluation spreadsheet with the computations to determine average lead concentrations is included as an electronic attachment.

Soil Exposure Point Concentrations (EPCs) were calculated for each COPC soil dataset in EU1. The calculated EPCs for the surface, subsurface, and pooled soil datasets are provided in **Table 3a/3b**. ProUCL output tables with the computed UCLs derived from the data for each COPC in soils are provided as electronic attachments. The ProUCL input tables are also included as electronic attachments.

Risk ratios for the estimates of potential EPCs for the Composite Worker baseline scenario and interim measures scenario are shown in **Table 4a/4b** (surface), **Table 5a/5b** (subsurface), and **Table 6a/6b** (pooled). As provided in these tables, the baseline scenario at the Site for surface soils indicates a carcinogenic risk level of 5E-5, which exceeds the acceptable threshold for no further action (1E-5). Additionally, the dermal system non-carcinogenic Hazard Index (HI) value exceeds the acceptable threshold of 1. As a result of these surface soil risk criteria exceedances, interim measures to mitigate Composite Worker risk, shown on **Figure 2**, have been implemented to mitigate areas of elevated surface soil risk associated with soil borings B23-010-SB, B23-015-SB, B23-016-SB, and B23-034-SB. The interim measures SLRA excluding the surface soil data associated with these borings indicates a carcinogenic risk level of 1E-5 and a non-carcinogenic HI values that do not exceed 1 for any target organs, thus meeting the required thresholds. This indicates that the surface soils remaining at the Site, following institution of interim remedies, are suitable to serve as a cap for the remaining impacted subsurface materials at the Site.

A Construction Worker SLRA has been conducted to assess risk to potential future Construction Workers that may need to perform ground intrusive work within Parcel B23. The interim remedies do not affect the Construction Worker evaluation. Site-specific risk-based evaluations were completed for a range of potential exposure frequencies to determine the maximum allowable exposure frequency for the site-wide EU that would result in risk ratios equivalent to a cumulative cancer risk of 1E-5 or HI of 1 for the individual target organs. This analysis indicated that the

allowable exposure frequency before additional worker protections or more detailed job safety evaluations might be needed is 35 days.

Risk ratios for the Construction Worker scenario using the selected duration of 35 days are shown in **Table 7** (surface), **Table 8** (subsurface), and **Table 9** (pooled). The variables entered for calculation of the site-specific Construction Worker SSLs (EU area, input assumptions, and exposure frequency) are indicated as notes on the tables. The spreadsheet used for computation of the site-specific Construction Worker SSLs is included as **Attachment 2**. Using the selected exposure duration of 35 days, the carcinogenic risks were all less than 1E-5, and none of the non-carcinogens caused a cumulative HI to exceed 1 for any target organ system. These findings are within the acceptable limits for no further action established by the agencies.

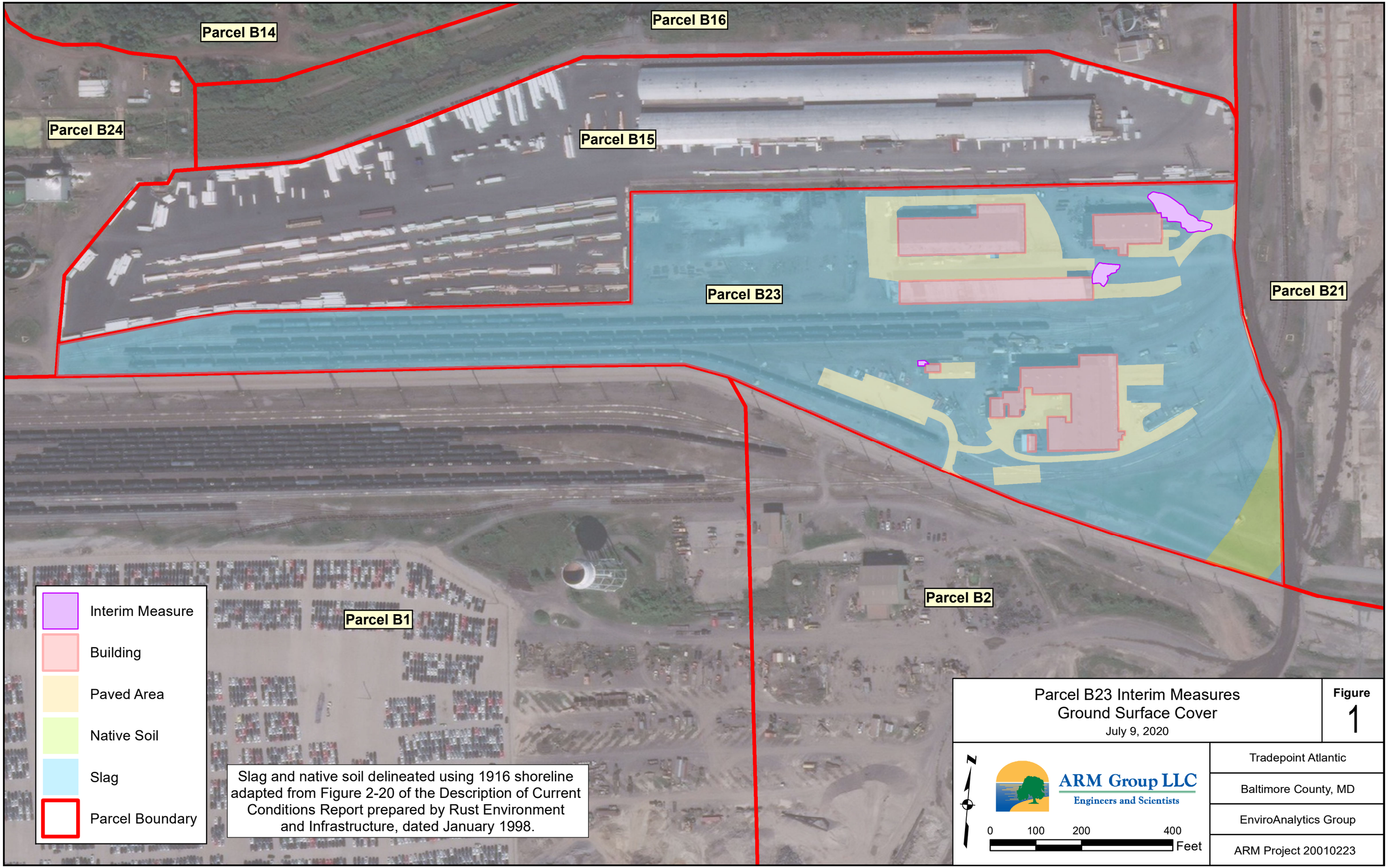
If you have any questions, or if we can provide any additional information at this time, please do not hesitate to contact ARM Group LLC at 410-290-7775.

Respectfully Submitted,
ARM Group LLC

Joshua M. Barna, G.I.T.
Staff Geologist

T. Neil Peters, P.E.
Senior Vice President

FIGURES



Parcel B23 Interim Measures Ground Surface Cover

July 9, 2020

Figure 1

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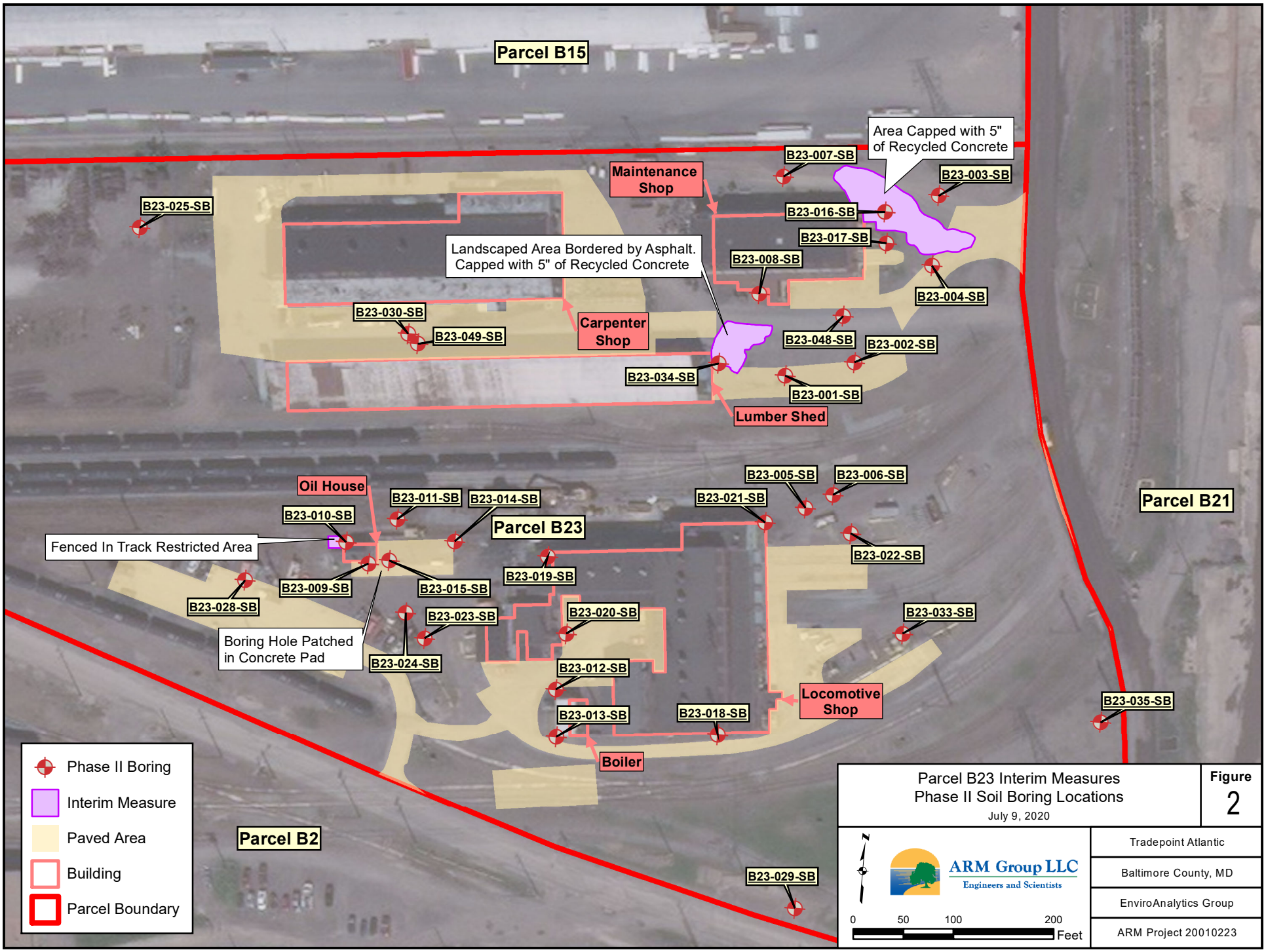
0 100 200 400 Feet

Tradepoint Atlantic

Baltimore County, MD

EnviroAnalytics Group

ARM Project 20010223


Parcel B15
Area Capped with 5" of Recycled Concrete
Maintenance Shop
B23-007-SB
B23-003-SB
B23-025-SB
B23-016-SB
B23-017-SB
Landscaped Area Bordered by Asphalt. Capped with 5" of Recycled Concrete
B23-008-SB
B23-004-SB
B23-030-SB
B23-049-SB
Carpenter Shop
B23-048-SB
B23-002-SB
B23-034-SB
B23-001-SB
Lumber Shed
Oil House
B23-005-SB
B23-006-SB
B23-011-SB
B23-014-SB
B23-021-SB
Parcel B21
B23-010-SB
Parcel B23
Fenced In Track Restricted Area
B23-022-SB
B23-019-SB
B23-009-SB
B23-015-SB
B23-028-SB
B23-023-SB
B23-020-SB
B23-033-SB
Boring Hole Patched in Concrete Pad
B23-024-SB
B23-012-SB
Locomotive Shop
B23-035-SB
B23-013-SB
B23-018-SB
Boiler
Phase II Boring
Interim Measure
Paved Area
Building
Parcel Boundary
Parcel B2
B23-029-SB
Parcel B23 Interim Measures
Phase II Soil Boring Locations
July 9, 2020
Figure
2
ARM Group LLC
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0
50
100
200
Feet
Tradepoint Atlantic
Baltimore County, MD
EnviroAnalytics Group
ARM Project 20010223

TABLES

Table 1 - Parcel B23
COPC Screening Analysis

Parameter	CAS#	Location of Max Result	Max Detection (mg/kg)	Final Flag	Min Detection (mg/kg)	Average Detection (mg/kg)	Total Samples	Frequency of Detection (%)	Cancer TR=1E-06 (mg/kg)	Non-Cancer HQ=0.1 (mg/kg)	COPC?
1,1,1-Trichloroethane	71-55-6	B23-002-SB-8.5	0.014		0.014	0.01	37	2.70		3,600	no
1,1-Biphenyl	92-52-4	B23-034-SB-5	4.9		0.018	0.53	74	21.62	410	20	no
1,2,4,5-Tetrachlorobenzene	95-94-3	B23-029-SB-5	0.073	J	0.016	0.04	74	6.76		35	no
2,4-Dimethylphenol	105-67-9	B23-021-SB-1	0.18	J	0.18	0.18	71	1.41		1,600	no
2,4-Dinitrophenol	51-28-5	B23-029-SB-1.5	0.071	J	0.071	0.07	70	1.43		160	no
2,4-Dinitrotoluene	121-14-2	B23-023-SB-5	0.18	J	0.022	0.10	74	2.70	7.4	160	no
2-Butanone (MEK)	78-93-3	B23-021-SB-8	0.087		0.018	0.05	37	5.41		19,000	no
2-Chloronaphthalene	91-58-7	B23-036-SB-4	0.052	J	0.021	0.04	74	6.76		6,000	no
2-Methylnaphthalene	91-57-6	B23-034-SB-1	20.6		0.0024	0.76	74	91.89		300	no
2-Methylphenol	95-48-7	B23-021-SB-1	0.19	J	0.15	0.17	71	2.82		4,100	no
Acenaphthene	83-32-9	B23-010-SB-1	9		0.00094	0.58	74	79.73		4,500	no
Acenaphthylene	208-96-8	B23-034-SB-1	76.2		0.0012	1.90	74	97.30			no
Acetone	67-64-1	B23-022-SB-1	0.34		0.0076	0.05	37	32.43		67,000	no
Acetophenone	98-86-2	B23-034-SB-5	1.1		0.019	0.21	74	13.51		12,000	no
Aluminum	7429-90-5	B23-013-SB-5	62,400		585	15,824	74	100.00		110,000	no
Anthracene	120-12-7	B23-008-SB-5	67.6		0.001	3.78	74	98.65		23,000	no
Antimony	7440-36-0	B23-031-SB-5	46.8		2.1	10.4	74	17.57		47	no
Aroclor 1248	12672-29-6	B23-017-SB-1	0.16		0.079	0.12	37	5.41	0.95		no
Aroclor 1254	11097-69-1	B23-016-SB-1	22.3		0.071	7.53	37	8.11	0.97	1.5	YES (C/NC)
Aroclor 1260	11096-82-5	B23-027-SB-1	0.5		0.018	0.20	37	16.22	0.99		no
Arsenic	7440-38-2	B23-020-SB-7	145		2.1	14.6	83	92.77	3	48	YES (C/NC)
Barium	7440-39-3	B23-028-SB-2	901		12.7	233	74	100.00		22,000	no
Benz[a]anthracene	56-55-3	B23-008-SB-5	151		0.0019	8.92	76	97.37	21		YES (C)
Benzaldehyde	100-52-7	B23-034-SB-5	1.1		0.018	0.18	74	18.92	820	12,000	no
Benzene	71-43-2	B23-017-SB-4	0.013		0.0023	0.008	37	5.41	5.1	42	no
Benzo[a]pyrene	50-32-8	B23-034-SB-1	123		0.00062	8.05	77	100.00	2.1	22	YES (C/NC)
Benzo[b]fluoranthene	205-99-2	B23-015-SB-2	544	J	0.0019	21.1	76	100.00	21		YES (C)
Benzo[g,h,i]perylene	191-24-2	B23-034-SB-1	203		0.0011	4.47	74	95.95			no
Benzo[k]fluoranthene	207-08-9	B23-015-SB-2	483	J	0.0017	14.9	74	98.65	210		YES (C)
Beryllium	7440-41-7	B23-048-SB-9	7.1		0.14	1.61	74	79.73	6,900	230	no
bis(2-Chloroethyl)ether	111-44-4	B23-001-SB-1.5	1.9		1.9	1.90	74	1.35	1		YES (C)
bis(2-Ethylhexyl)phthalate	117-81-7	B23-021-SB-1	0.16	J	0.016	0.05	74	9.46	160	1,600	no
Cadmium	7440-43-9	B23-015-SB-8	53.8		0.3	4.59	74	79.73	9,300	98	no
Caprolactam	105-60-2	B23-024-SB-1	2.8		0.024	0.44	74	16.22		40,000	no
Carbazole	86-74-8	B23-010-SB-1 & B23-021-SB-1	5.6		0.019	1.01	74	32.43			no
Chloroform	67-66-3	B23-009-SB-5	0.003	J	0.003	0.003	37	2.70	1.4	100	no
Chromium	7440-47-3	B23-012-SB-5	3,020		14.9	532	74	100.00		180,000	no
Chromium VI	18540-29-9	B23-020-SB-7	5.7		0.54	1.14	69	33.33	6.3	350	no
Chrysene	218-01-9	B23-008-SB-5	131		0.00098	7.96	74	97.30	2,100		no

Table 1 - Parcel B23
COPC Screening Analysis

Parameter	CAS#	Location of Max Result	Max Detection (mg/kg)	Final Flag	Min Detection (mg/kg)	Average Detection (mg/kg)	Total Samples	Frequency of Detection (%)	Cancer TR=1E-06 (mg/kg)	Non-Cancer HQ=0.1 (mg/kg)	COPC?
Cobalt	7440-48-4	B23-024-SB-5	78.6		0.47	13.0	74	98.65	1,900	35	YES (NC)
Copper	7440-50-8	B23-021-SB-8	12,400		5.6	359	74	100.00		4,700	YES (NC)
Cyanide	57-12-5	B23-015-SB-8	17.9	J-	0.12	1.26	74	93.24		120	no
Cyclohexane	110-82-7	B23-021-SB-8	0.028		0.028	0.03	37	2.70		2,700	no
Dibenz[a,h]anthracene	53-70-3	B23-034-SB-1	60.1		0.0025	1.90	76	82.89	2.1		YES (C)
Di-n-butylphthalate	84-74-2	B23-026-SB-4	0.021	J	0.021	0.02	74	1.35		8,200	no
Ethylbenzene	100-41-4	B23-022-SB-1	0.023		0.0024	0.01	37	10.81	25	2,000	no
Fluoranthene	206-44-0	B23-015-SB-2	509		0.0025	21.0	74	100.00		3,000	no
Fluorene	86-73-7	B23-015-SB-2	33.4		0.0014	1.38	74	82.43		3,000	no
Indeno[1,2,3-c,d]pyrene	193-39-5	B23-034-SB-1	180		0.0023	5.07	76	92.11	21		YES (C)
Iron	7439-89-6	B23-025-SB-5	202,000		1,720	83,110	74	100.00		82,000	YES (NC)
Lead^	7439-92-1	B23-020-SB-7	14,100		2.8	539	94	98.94		800	YES (NC)
Manganese	7439-96-5	B23-024-SB-5	66,800		389	11,059	74	100.00		2,600	YES (NC)
Mercury	7439-97-6	B23-034-SB-5	2.5	J-	0.0065	0.17	74	83.78		35	no
Naphthalene	91-20-3	B23-034-SB-1	334		0.0022	5.57	75	97.33	8.6	59	YES (C/NC)
Nickel	7440-02-0	B23-024-SB-5	339		1.4	45.4	74	100.00	64,000	2,200	no
N-Nitrosodiphenylamine	86-30-6	B23-024-SB-1	0.29	J	0.021	0.18	74	4.05	470		no
PCBs (total)*	1336-36-3	B23-016-SB-1	22.3		0.031	3.94	37	16.22	0.94		YES (C)
Pentachlorophenol	87-86-5	B23-036-SB-1	0.21		0.064	0.14	71	2.82	4	280	no
Phenanthrene	85-01-8	B23-015-SB-2	446		0.0028	18.1	74	100.00			no
Phenol	108-95-2	B23-021-SB-1	0.54	J	0.018	0.31	71	7.04		25,000	no
Pyrene	129-00-0	B23-015-SB-2	362		0.0017	14.4	74	100.00		2,300	no
Selenium	7782-49-2	B23-018-SB-8	8.5		2.5	4.24	74	21.62		580	no
Silver	7440-22-4	B23-031-SB-5	62.1		0.5	17.0	74	59.46		580	no
Styrene	100-42-5	B23-022-SB-1	0.0015	J	0.0015	0.002	37	2.70		3,500	no
Tetrachloroethene	127-18-4	B23-016-SB-1	0.012		0.004	0.008	37	13.51	100	39	no
Thallium	7440-28-0	B23-014-SB-5	36.6		2.8	7.67	74	27.03		1.2	YES (NC)
Toluene	108-88-3	B23-017-SB-4	0.021		0.0023	0.007	37	10.81		4,700	no
Vanadium	7440-62-2	B23-014-SB-5	10,600		29.3	1,479	74	100.00		580	YES (NC)
Xylenes	1330-20-7	B23-022-SB-1	0.19		0.011	0.08	37	8.11		250	no
Zinc	7440-66-6	B23-008-SB-5	25,300		5.7	1,700	74	97.30		35,000	no

J: The positive result reported for this analyte is a quantitative estimate.
J-: The positive result reported for this analyte is a quantitative estimate but may be biased low.

COPC = Constituent of Potential Concern
TR = Target Risk
HQ = Hazard Quotient
C = Compound was identified as a cancer COPC
NC = Compound was identified as a non-cancer COPC

*PCBs (total) include the sum of all detected aroclor mixtures, including those without regional screening levels (e.g. Aroclor 1262, Aroclor 1268) which are not displayed.
^The COPC screening level for lead was not adjusted to the HQ=0.1 because lead is not assessed in the SLRA. The 800 mg/kg PAL is relevant to the Adult Lead Model procedure.

Table 2a - Parcel B23 - Baseline Conditions
Assessment of Lead

Exposure Unit	Surface/Sub-Surface	Arithmetic Mean (mg/kg)
Site-Wide EU (23.0 ac.)	Surface	296
	Sub-Surface	742
	Pooled	533

Adult Lead Model (ALM) Risk Levels	
Soil Concentration (mg/kg)	Probability of Blood Concentration of 10 ug/dL
2,518	5%
3,216	10%

Table 2b - Parcel B23 - Interim Measures Conditions
Assessment of Lead

Exposure Unit	Surface/Sub-Surface	Arithmetic Mean (mg/kg)
Site-Wide EU (23.0 ac.)	Surface	297
	Sub-Surface	742
	Pooled	544

Adult Lead Model (ALM) Risk Levels	
Soil Concentration (mg/kg)	Probability of Blood Concentration of 10 ug/dL
2,518	5%
3,216	10%

Table 3a - Parcel B23 - Baseline Conditions
Soil Exposure Point Concentrations

			Site-Wide EU (23.0 ac.)					
			EPCs - Surface Soils		EPCs - Sub-Surface Soils		EPCs - Pooled Soils	
Parameter	Cancer COPC Screening Level (mg/kg)	Non-Cancer COPC Screening Level (mg/kg)	EPC Type	EPC (mg/kg)	EPC Type	EPC (mg/kg)	EPC Type	EPC (mg/kg)
Arsenic	3.00	48.0	95% KM Adjusted Gamma UCL	**16.7**	KM H-UCL	**18.8**	KM H-UCL	**15.7**
Cobalt	1,900	35.0	95% Student's-t UCL	11.3	95% KM (t) UCL	20.5	95% KM Approximate Gamma UCL	15.5
Copper		4,700	95% Adjusted Gamma UCL	271	95% H-UCL	744	95% H-UCL	406
Iron		82,000	95% Student's-t UCL	**85,520**	95% Student's-t UCL	**110,576**	95% Student's-t UCL	**93,479**
Manganese		2,600	95% Adjusted Gamma UCL	**12,419**	95% Adjusted Gamma UCL	**17,352**	95% Approximate Gamma UCL	**13,362**
Thallium		1.20	95% KM (t) UCL	**6.45**	95% KM (Chebyshev) UCL	**11.1**	95% KM (Chebyshev) UCL	**8.49**
Vanadium		580	95% Adjusted Gamma UCL	**1,530**	95% Adjusted Gamma UCL	**2,967**	95% H-UCL	**3,064**
PCBs Total	0.94		97.5% KM (Chebyshev) UCL	**4.79**	NA	NA	97.5% KM (Chebyshev) UCL	**4.79**
Aroclor 1254	NE	1.50	Maximum Value	**22.3**	NA	NA	Maximum Value	**22.3**
Benz[a]anthracene	21.0		97.5% KM (Chebyshev) UCL	**38.0**	97.5% KM (Chebyshev) UCL	**31.7**	95% KM (Chebyshev) UCL	**21.6**
Benzo[a]pyrene	2.10	22.0	97.5% Chebyshev (Mean, Sd) UCL	**40.9**	97.5% Chebyshev (Mean, Sd) UCL	**21.4**	95% Chebyshev (Mean, Sd) UCL	**19.8**
Benzo[b]fluoranthene	21.0		97.5% Chebyshev (Mean, Sd) UCL	**140**	97.5% Chebyshev (Mean, Sd) UCL	**35.2**	95% Chebyshev (Mean, Sd) UCL	**59.6**
Benzo[k]fluoranthene	210		97.5% Chebyshev (Mean, Sd) UCL	117	Gamma Adjusted KM-UCL	11.6	95% KM (Chebyshev) UCL	48.2
Dibenz[a,h]anthracene	2.10		97.5% KM (Chebyshev) UCL	**12.4**	97.5% KM (Chebyshev) UCL	**2.78**	KM H-UCL	**3.74**
Indeno[1,2,3-c,d]pyrene	21.0		97.5% KM (Chebyshev) UCL	**36.5**	97.5% KM (Chebyshev) UCL	12.4	KM H-UCL	15.3
Naphthalene	8.60	59.0	97.5% KM (Chebyshev) UCL	**64.9**	97.5% Chebyshev (Mean, Sd) UCL	2.31	KM H-UCL	4.61

Bold indicates EPC higher than lowest COPC Screening Level
COPC = Constituent of Potential Concern
NE = Not Evaluated
NA = No Detections

Table 3b - Parcel B23 - Interim Measures Conditions
Soil Exposure Point Concentrations

			Site-Wide EU (23.0 ac.)					
			EPCs - Surface Soils		EPCs - Sub-Surface Soils		EPCs - Pooled Soils	
Parameter	Cancer COPC Screening Level (mg/kg)	Non-Cancer COPC Screening Level (mg/kg)	EPC Type	EPC (mg/kg)	EPC Type	EPC (mg/kg)	EPC Type	EPC (mg/kg)
Arsenic	3.00	48.0	95% KM Adjusted Gamma UCL	**17.3**	KM H-UCL	**18.8**	KM H-UCL	**16.0**
Cobalt	1,900	35.0	95% Student's-t UCL	11.1	95% KM (t) UCL	20.5	95% KM Approximate Gamma UCL	15.7
Copper		4,700	95% H-UCL	374	95% H-UCL	744	95% H-UCL	385
Iron		82,000	95% Student's-t UCL	**83,593**	95% Student's-t UCL	**110,576**	95% Chebyshev (Mean, Sd) UCL	**110,681**
Manganese		2,600	95% Adjusted Gamma UCL	**12,264**	95% Adjusted Gamma UCL	**17,352**	95% Approximate Gamma UCL	**13,359**
Thallium		1.20	95% KM (t) UCL	**6.36**	95% KM (Chebyshev) UCL	**11.1**	95% KM (Chebyshev) UCL	**8.57**
Vanadium		580	95% Adjusted Gamma UCL	**1,295**	95% Adjusted Gamma UCL	**2,967**	95% H-UCL	**2,626**
PCBs Total	0.94		Gamma Adjusted KM-UCL	0.21	NA	NA	Gamma Adjusted KM-UCL	0.21
Aroclor 1254	NE	1.50	Maximum Value	0.22	NA	NA	Maximum Value	0.22
Benz[a]anthracene	21.0		97.5% Chebyshev (Mean, Sd) UCL	19.9	97.5% KM (Chebyshev) UCL	**31.7**	KM H-UCL	**22.5**
Benzo[a]pyrene	2.10	22.0	95% Chebyshev (Mean, Sd) UCL	**11.0**	97.5% Chebyshev (Mean, Sd) UCL	**21.4**	95% Chebyshev (Mean, Sd) UCL	**11.4**
Benzo[b]fluoranthene	21.0		95% Chebyshev (Mean, Sd) UCL	16.9	97.5% Chebyshev (Mean, Sd) UCL	**35.2**	95% H-UCL	**45.3**
Benzo[k]fluoranthene	210		95% Chebyshev (Mean, Sd) UCL	5.62	Gamma Adjusted KM-UCL	11.6	KM H-UCL	13.8
Dibenz[a,h]anthracene	2.10		95% KM (Chebyshev) UCL	1.99	97.5% KM (Chebyshev) UCL	**2.78**	KM H-UCL	1.84
Indeno[1,2,3-c,d]pyrene	21.0		95% KM (Chebyshev) UCL	4.79	97.5% KM (Chebyshev) UCL	12.4	KM H-UCL	7.51
Naphthalene	8.60	59.0	95% KM (Chebyshev) UCL	2.87	97.5% Chebyshev (Mean, Sd) UCL	2.31	KM H-UCL	1.97

Bold indicates EPC higher than lowest COPC Screening Level
COPC = Constituent of Potential Concern
NE = Not Evaluated
NA = No Detections

Table 4a - Parcel B23 Baseline Conditions
Surface Soils
Composite Worker Risk Ratios

Parameter	Target Organs	Site-Wide EU1 (23.0 ac.)				
			Composite Worker			
			RSLs (mg/kg)		Risk Ratios	
		EPC (mg/kg)	Cancer	Non-Cancer	Risk	HQ
Arsenic	**Cardiovascular; Dermal**	16.7	3.00	480	5.6E-06	0.03
Cobalt	**Thyroid**	11.3	1,900	350	5.9E-09	0.03
Copper	**Gastrointestinal**	271		47,000		0.006
Iron	**Gastrointestinal**	85,520		820,000		0.1
Manganese	**Nervous**	12,419		26,000		0.5
Thallium	**Dermal**	6.45		12.0		0.5
Vanadium	**Dermal**	1,530		5,800		0.3
PCBs Total		4.79	0.94		5.1E-06	
Aroclor 1254	**Dermal; Immune; Ocular**	**22.3**	NE	15.0		1
Benz[a]anthracene		38.0	21.0		1.8E-06	
Benzo[a]pyrene	**Developmental**	40.9	2.10	220	1.9E-05	0.2
Benzo[b]fluoranthene		140	21.0		6.7E-06	
Benzo[k]fluoranthene		117	210		5.6E-07	
Dibenz[a,h]anthracene		12.4	2.10		5.9E-06	
Indeno[1,2,3-c,d]pyrene		36.5	21.0		1.7E-06	
Naphthalene	**Nervous; Respiratory**	64.9	8.60	590	7.5E-06	0.1
					5E-05	↓

RSLs were obtained from the EPA Regional Screening Levels at
https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search
Bold indicates maximum value
NE = Not Evaluated

Total HI	Cardiovascular	0
	Dermal	2
	Thyroid	0
	Gastrointestinal	0
	Nervous	1
	Immune	1
	Ocular	1
	Developmental	0
	Respiratory	0

Table 4b - Parcel B23 Interim Measures Conditions
Surface Soils
Composite Worker Risk Ratios

Parameter	Target Organs	Site-Wide EU1 (23.0 ac.)				
			Composite Worker			
			RSLs (mg/kg)		Risk Ratios	
		EPC (mg/kg)	Cancer	Non-Cancer	Risk	HQ
Arsenic	**Cardiovascular; Dermal**	17.3	3.00	480	5.8E-06	0.04
Cobalt	**Thyroid**	11.1	1,900	350	5.8E-09	0.03
Copper	**Gastrointestinal**	374		47,000		0.008
Iron	**Gastrointestinal**	83,593		820,000		0.1
Manganese	**Nervous**	12,264		26,000		0.5
Thallium	**Dermal**	6.36		12.0		0.5
Vanadium	**Dermal**	1,295		5,800		0.2
PCBs Total		0.21	0.94		2.2E-07	
Aroclor 1254	**Dermal; Immune; Ocular**	**0.22**	NE	15.0		0.01
Benz[a]anthracene		19.9	21.0		9.5E-07	
Benzo[a]pyrene	**Developmental**	11.0	2.10	220	5.2E-06	0.05
Benzo[b]fluoranthene		16.9	21.0		8.0E-07	
Benzo[k]fluoranthene		5.62	210		2.7E-08	
Dibenz[a,h]anthracene		1.99	2.10		9.5E-07	
Indeno[1,2,3-c,d]pyrene		4.79	21.0		2.3E-07	
Naphthalene	**Nervous; Respiratory**	2.87	8.60	590	3.3E-07	0.005
					1E-05	↓

RSLs were obtained from the EPA Regional Screening Levels at
https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search
Bold indicates maximum value
NE = Not Evaluated

Accounts for the removal of surface soil data (0 to 2 feet) associated with B23-010-SB, B23-015-SB, B23-016-SB, and B23-034-SB.

Total HI	Cardiovascular	0
	Dermal	1
	Thyroid	0
	Gastrointestinal	0
	Nervous	0
	Immune	0
	Ocular	0
	Developmental	0
	Respiratory	0

Table 5a - Parcel B23 Baseline Conditions
Sub-Surface Soils
Composite Worker Risk Ratios

Parameter	Target Organs	Site-Wide EU1 (23.0 ac.)				
			Composite Worker			
			RSLs (mg/kg)		Risk Ratios	
		EPC (mg/kg)	Cancer	Non-Cancer	Risk	HQ
Arsenic	**Cardiovascular; Dermal**	18.8	3.00	480	6.3E-06	0.04
Cobalt	**Thyroid**	20.5	1,900	350	1.1E-08	0.06
Copper	**Gastrointestinal**	744		47,000		0.02
Iron	**Gastrointestinal**	110,576		820,000		0.1
Manganese	**Nervous**	17,352		26,000		0.7
Thallium	**Dermal**	11.1		12.0		0.9
Vanadium	**Dermal**	2,967		5,800		0.5
PCBs Total		NA	0.94			
Aroclor 1254	**Dermal; Immune; Ocular**	NA	NE	15.0		
Benz[a]anthracene		31.7	21.0		1.5E-06	
Benzo[a]pyrene	**Developmental**	21.4	2.10	220	1.0E-05	0.1
Benzo[b]fluoranthene		35.2	21.0		1.7E-06	
Benzo[k]fluoranthene		11.6	210		5.5E-08	
Dibenz[a,h]anthracene		2.78	2.10		1.3E-06	
Indeno[1,2,3-c,d]pyrene		12.4	21.0		5.9E-07	
Naphthalene	**Nervous; Respiratory**	2.31	8.60	590	2.7E-07	0.004
					2E-05	↓

RSLs were obtained from the EPA Regional Screening Levels at
https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search
NA = No Detections
NE = Not Evaluated

Total HI	Cardiovascular	0
	Dermal	1
	Thyroid	0
	Gastrointestinal	0
	Nervous	1
	Immune	0
	Ocular	0
	Developmental	0
	Respiratory	0

Table 5b - Parcel B23 Interim Measures Conditions
Sub-Surface Soils
Composite Worker Risk Ratios

Parameter	Target Organs	Site-Wide EU1 (23.0 ac.)				
			Composite Worker			
			RSLs (mg/kg)		Risk Ratios	
		EPC (mg/kg)	Cancer	Non-Cancer	Risk	HQ
Arsenic	**Cardiovascular; Dermal**	18.8	3.00	480	6.3E-06	0.04
Cobalt	**Thyroid**	20.5	1,900	350	1.1E-08	0.06
Copper	**Gastrointestinal**	744		47,000		0.02
Iron	**Gastrointestinal**	110,576		820,000		0.1
Manganese	**Nervous**	17,352		26,000		0.7
Thallium	**Dermal**	11.1		12.0		0.9
Vanadium	**Dermal**	2,967		5,800		0.5
PCBs Total		NA	0.94			
Aroclor 1254	**Dermal; Immune; Ocular**	NA	NE	15.0		
Benz[a]anthracene		31.7	21.0		1.5E-06	
Benzo[a]pyrene	**Developmental**	21.4	2.10	220	1.0E-05	0.1
Benzo[b]fluoranthene		35.2	21.0		1.7E-06	
Benzo[k]fluoranthene		11.6	210		5.5E-08	
Dibenz[a,h]anthracene		2.78	2.10		1.3E-06	
Indeno[1,2,3-c,d]pyrene		12.4	21.0		5.9E-07	
Naphthalene	**Nervous; Respiratory**	2.31	8.60	590	2.7E-07	0.004
					2E-05	↓

RSLs were obtained from the EPA Regional Screening Levels at
https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search
NA = No Detections
NE = Not Evaluated

Total HI	Cardiovascular	0
	Dermal	1
	Thyroid	0
	Gastrointestinal	0
	Nervous	1
	Immune	0
	Ocular	0
	Developmental	0
	Respiratory	0

Table 6a - Parcel B23 Baseline Conditions
Pooled Soils
Composite Worker Risk Ratios

Parameter	Target Organs	Site-Wide EU1 (23.0 ac.)				
			Composite Worker			
			RSLs (mg/kg)		Risk Ratios	
		EPC (mg/kg)	Cancer	Non-Cancer	Risk	HQ
Arsenic	**Cardiovascular; Dermal**	15.7	3.00	480	5.2E-06	0.03
Cobalt	**Thyroid**	15.5	1,900	350	8.2E-09	0.04
Copper	**Gastrointestinal**	406		47,000		0.009
Iron	**Gastrointestinal**	93,479		820,000		0.1
Manganese	**Nervous**	13,362		26,000		0.5
Thallium	**Dermal**	8.49		12.0		0.7
Vanadium	**Dermal**	3,064		5,800		0.5
PCBs Total		4.79	0.94		5.1E-06	
Aroclor 1254	**Dermal; Immune; Ocular**	**22.3**	NE	15.0		1
Benz[a]anthracene		21.6	21.0		1.0E-06	
Benzo[a]pyrene	**Developmental**	19.8	2.10	220	9.4E-06	0.09
Benzo[b]fluoranthene		59.6	21.0		2.8E-06	
Benzo[k]fluoranthene		48.2	210		2.3E-07	
Dibenz[a,h]anthracene		3.74	2.10		1.8E-06	
Indeno[1,2,3-c,d]pyrene		15.3	21.0		7.3E-07	
Naphthalene	**Nervous; Respiratory**	4.61	8.60	590	5.4E-07	0.008
					3E-05	↓

RSLs were obtained from the EPA Regional Screening Levels at
https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search
Bold indicates maximum value
NE = Not Evaluated

Total HI	Cardiovascular	0
	Dermal	3
	Thyroid	0
	Gastrointestinal	0
	Nervous	1
	Immune	1
	Ocular	1
	Developmental	0
	Respiratory	0

Table 6b - Parcel B23 Interim Measures Conditions
Pooled Soils
Composite Worker Risk Ratios

Parameter	Target Organs	Site-Wide EU1 (23.0 ac.)				
			Composite Worker			
			RSLs (mg/kg)		Risk Ratios	
		EPC (mg/kg)	Cancer	Non-Cancer	Risk	HQ
Arsenic	**Cardiovascular; Dermal**	16.0	3.00	480	5.3E-06	0.03
Cobalt	**Thyroid**	15.7	1,900	350	8.3E-09	0.04
Copper	**Gastrointestinal**	385		47,000		0.008
Iron	**Gastrointestinal**	110,681		820,000		0.1
Manganese	**Nervous**	13,359		26,000		0.5
Thallium	**Dermal**	8.57		12.0		0.7
Vanadium	**Dermal**	2,626		5,800		0.5
PCBs Total		0.21	0.94		2.2E-07	
Aroclor 1254	**Dermal; Immune; Ocular**	**0.22**	NE	15.0		0.01
Benz[a]anthracene		22.5	21.0		1.1E-06	
Benzo[a]pyrene	**Developmental**	11.4	2.10	220	5.4E-06	0.05
Benzo[b]fluoranthene		45.3	21.0		2.2E-06	
Benzo[k]fluoranthene		13.8	210		6.6E-08	
Dibenz[a,h]anthracene		1.84	2.10		8.8E-07	
Indeno[1,2,3-c,d]pyrene		7.51	21.0		3.6E-07	
Naphthalene	**Nervous; Respiratory**	1.97	8.60	590	2.3E-07	0.003
					2E-05	↓

RSLs were obtained from the EPA Regional Screening Levels at
https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search
Bold indicates maximum value
NE = Not Evaluated

Accounts for the removal of surface soil data (0 to 2 feet) associated with B23-010-SB, B23-015-SB, B23-016-SB, and B23-034-SB.

Total HI	Cardiovascular	0
	Dermal	1
	Thyroid	0
	Gastrointestinal	0
	Nervous	1
	Immune	0
	Ocular	0
	Developmental	0
	Respiratory	0

Table 7 - Parcel B23
Surface Soils
Construction Worker Risk Ratios

35 Day		Site-Wide EU1 (23.0 ac.)				
			Construction Worker			
			SSLs (mg/kg)		Risk Ratios	
Parameter	Target Organs	EPC (mg/kg)	Cancer	Non-Cancer	Risk	HQ
Arsenic	Cardiovascular; Dermal	16.7	108	687	1.5E-07	0.02
Cobalt	Thyroid	11.3	27,293	6,664	4.1E-10	0.002
Copper	Gastrointestinal	271		24,545		0.01
Iron	Gastrointestinal	85,520		1,718,152		0.05
Manganese	Nervous	12,419		28,951		0.4
Thallium	Dermal	6.45		98.2		0.07
Vanadium	Dermal	1,530		11,358		0.1
PCBs Total		4.79	25.1		1.9E-07	
Aroclor 1254	Dermal; Immune; Ocular	**22.3**	NE	53.4		0.4
Benz[a]anthracene		38.0	921		4.1E-08	
Benzo[a]pyrene	Developmental	40.9	119	28.7	3.4E-07	1
Benzo[b]fluoranthene		140	1,179		1.2E-07	
Benzo[k]fluoranthene		117	11,816		9.9E-09	
Dibenz[a,h]anthracene		12.4	127		9.8E-08	
Indeno[1,2,3-c,d]pyrene		36.5	1,230		3.0E-08	
Naphthalene	Nervous; Respiratory	64.9	60.5	87.9	1.1E-06	0.7
					2E-06	↓

SSLs calculated using equations in the EPA Supplemental Guidance dated 2002
Guidance Equation Input Assumptions:
5 cars/day (2 tons/car)
5 trucks/day (20 tons/truck)
3 meter source depth thickness
Bold indicates maximum value
NE = Not Evaluated

Total HI	Cardiovascular	0
	Dermal	1
	Thyroid	0
	Gastrointestinal	0
	Nervous	1
	Immune	0
	Ocular	0
	Developmental	1
	Respiratory	1

Table 8 - Parcel B23
Sub-Surface Soils
Construction Worker Risk Ratios

35 Day		Site-Wide EU1 (23.0 ac.)				
			Construction Worker			
			SSLs (mg/kg)		Risk Ratios	
Parameter	Target Organs	EPC (mg/kg)	Cancer	Non-Cancer	Risk	HQ
Arsenic	Cardiovascular; Dermal	18.8	108	687	1.7E-07	0.03
Cobalt	Thyroid	20.5	27,293	6,664	7.5E-10	0.003
Copper	Gastrointestinal	744		24,545		0.03
Iron	Gastrointestinal	110,576		1,718,152		0.06
Manganese	Nervous	17,352		28,951		0.6
Thallium	Dermal	11.1		98.2		0.1
Vanadium	Dermal	2,967		11,358		0.3
PCBs Total		NA	25.1			
Aroclor 1254	Dermal; Immune; Ocular	NA	NE	53.4		
Benz[a]anthracene		31.7	921		3.4E-08	
Benzo[a]pyrene	Developmental	21.4	119	28.7	1.8E-07	0.7
Benzo[b]fluoranthene		35.2	1,179		3.0E-08	
Benzo[k]fluoranthene		11.6	11,816		9.8E-10	
Dibenz[a,h]anthracene		2.78	127		2.2E-08	
Indeno[1,2,3-c,d]pyrene		12.4	1,230		1.0E-08	
Naphthalene	Nervous; Respiratory	2.31	60.5	87.9	3.8E-08	0.03
					5E-07	↓

SSLs calculated using equations in the EPA Supplemental Guidance dated 2002
Guidance Equation Input Assumptions:
5 cars/day (2 tons/car)
5 trucks/day (20 tons/truck)
3 meter source depth thickness
NA = No Detections
NE = Not Evaluated

Total HI	Cardiovascular	0
	Dermal	0
	Thyroid	0
	Gastrointestinal	0
	Nervous	1
	Immune	0
	Ocular	0
	Developmental	1
	Respiratory	0

Table 9 - Parcel B23
Pooled Soils
Construction Worker Risk Ratios

35 Day		Site-Wide EU1 (23.0 ac.)				
			Construction Worker			
			SSLs (mg/kg)		Risk Ratios	
Parameter	Target Organs	EPC (mg/kg)	Cancer	Non-Cancer	Risk	HQ
Arsenic	**Cardiovascular; Dermal**	15.7	108	687	1.5E-07	0.02
Cobalt	**Thyroid**	15.5	27,293	6,664	5.7E-10	0.002
Copper	**Gastrointestinal**	406		24,545		0.02
Iron	**Gastrointestinal**	93,479		1,718,152		0.05
Manganese	**Nervous**	13,362		28,951		0.5
Thallium	**Dermal**	8.49		98.2		0.09
Vanadium	**Dermal**	3,064		11,358		0.3
PCBs Total		4.79	25.1		1.9E-07	
Aroclor 1254	**Dermal; Immune; Ocular**	**22.3**	NE	53.4		0.4
Benz[a]anthracene		21.6	921		2.3E-08	
Benzo[a]pyrene	**Developmental**	19.8	119	28.7	1.7E-07	0.7
Benzo[b]fluoranthene		59.6	1,179		5.1E-08	
Benzo[k]fluoranthene		48.2	11,816		4.1E-09	
Dibenz[a,h]anthracene		3.74	127		2.9E-08	
Indeno[1,2,3-c,d]pyrene		15.3	1,230		1.2E-08	
Naphthalene	**Nervous; Respiratory**	4.61	60.5	87.9	7.6E-08	0.05
					7E-07	↓

SSLs calculated using equations in the EPA Supplemental Guidance dated 2002
Guidance Equation Input Assumptions:
5 cars/day (2 tons/car)
5 trucks/day (20 tons/truck)
3 meter source depth thickness
Bold indicates maximum value
NE = Not Evaluated

Total HI	Cardiovascular	0
	Dermal	1
	Thyroid	0
	Gastrointestinal	0
	Nervous	1
	Immune	0
	Ocular	0
	Developmental	1
	Respiratory	0

ATTACHMENT 1

Interim Remedy Photograph Log
Tradepoint Atlantic Property: Parcel B23
Sparrows Point, Baltimore County, Maryland

060820-1: Concrete patch installed at boring hole for B23-015-SB.

062920-1: Temporary fencing installed around boring B23-010-SB.

062920-2: Temporary fencing installed around boring B23-010-SB.

070820-1: Crushed recycled concrete temporary cap installed covering boring B23-016-SB.

070820-2: Crushed recycled concrete temporary cap installed covering boring B23-016-SB.

070820-3: Crushed recycled concrete temporary cap installed covering boring B23-034-SB.

070820-4: Crushed recycled concrete temporary cap installed covering boring B23-034-SB.

ATTACHMENT 2

Construction Worker Soil Screening Levels
Maximum Allowable Work Day Exposure
Calculation Spreadsheet - Parcel B23

Description	Variable	Value
Days worked per week	DW	5
Exposure duration (yr)	ED	1
Hours worked per day	ET	8
A/constant (unitless) - particulate emission factor	Aconst	12.9351
B/constant (unitless) - particulate emission factor	Bconst	5.7383
C/constant (unitless) - particulate emission factor	Cconst	71.7711
Dispersion correction factor (unitless)	FD	0.185
Days per year with at least .01" precipitation	P	130
Target hazard quotient (unitless)	THQ	1
Body weight (kg)	BW	80
Averaging time - noncancer (yr)	ATnc	1
Soil ingestion rate (mg/d)	IR	330
Skin-soil adherence factor (mg/cm2)	AF	0.3
Skin surface exposed (cm2)	SA	3300
Event frequency (ev/day)	EV	1
Target cancer risk (unitless)	TR	01E-06
Averaging time - cancer (yr)	ATc	70
A/constant (unitless) - volatilization	Aconstv	2.4538
B/constant (unitless) - volatilization	Bconstv	17.566
C/constant (unitless) - volatilization	Cconstv	189.0426
Dry soil bulk density (kg/L)	Pb	1.5
Average source depth (m)	ds	3
Soil particle density (g/cm3)	Ps	2.65
Total soil porosity	Lpore/Lsoil	0.43
Air-filled soil porosity	Lair/Lsoil	0.28

Construction Worker Soil Screening Levels
Maximum Allowable Work Day Exposure
Calculation Spreadsheet - Parcel B23

Area of site (ac)	Ac	23.0	→ EU1
Overall duration of construction (wk/yr)	EW	7	
Exposure frequency (day/yr)	EF	**35**	
Cars per day	Ca	5	
Tons per car	CaT	2	
Trucks per day	Tru	5	
Tons per truck	TrT	20	
Mean vehicle weight (tons)	w	**11**	
Derivation of dispersion factor - particulate emission factor (g/m2-s per kg/m3)	Q/Csr	**14.2**	
Overall duration of construction (hr)	tc	**1,176**	
Overall duration of traffic (s)	Tt	**1,008,000**	
Surface area (m2)	AR	**93,078**	
Length (m)	LR	**305**	
Distance traveled (km)	ΣVKT	**107**	
Particulate emission factor (m3/kg)	PEFsc	**112,162,841**	
Derivation of dispersion factor - volatilization (g/m2-s per kg/m3)	Q/Csa	**7.38**	
Total time of construction (s)	Tcv	**1,008,000**	

Input
Calculation

Chemical	RfD & RfC Sources	^Ingestion SF (mg/kg-day)$^{-1}$	^Inhalation Unit Risk (ug/m^3)$^{-1}$	^Subchronic RfD (mg/kg-day)	^Subchronic RfC (mg/m^3)	^GIABS	Dermally Adjusted RfD (mg/kg-day)	^ABS	^RBA	*Dia	*Diw	*Henry's Law Constant (unitless)	*Kd	*Koc	DA	Volatilization Factor - Unlimited Reservoir (m^3/kg)	Carcinogenic Ingestion/ Dermal SL (SLing/der)	Carcinogenic Inhalation SL (SLinh)	Carcinogenic SL (mg/kg)	Non-Carcinogenic Ingestion/ Dermal SL (SLing/der)	Non-Carcinogenic Inhalation SL (SLinh)	Non-Carcinogenic SL (mg/kg)
Arsenic, Inorganic	I/C	1.50E+00	4.30E-03	3.00E-04	1.50E-05	1	3.00E-04	0.03	0.6			-	2.90E+01				108	57,125	108	696	52,636	687
Cobalt	P	-	9.00E-03	3.00E-03	2.00E-05	1	3.00E-03	**0.01**	1			-	4.50E+01					27,293	27,293	7,364	70,182	6,664
Copper	A	-	-	1.00E-02	-	1	1.00E-02	**0.01**	1			-	3.50E+01							24,545		24,545
Iron	P	-	-	7.00E-01	-	1	7.00E-01	**0.01**	1			-	2.50E+01							1,718,152		1,718,152
Manganese (Non-diet)	I	-	-	2.40E-02	5.00E-05	0.04	9.60E-04	**0.01**	1			-	6.50E+01							34,672	175,455	28,951
Thallium (Soluble Salts)	P	-	-	4.00E-05	-	1	4.00E-05	**0.01**	1			-	7.10E+01							98.2		98.2
Vanadium and Compounds	A	-	-	1.00E-02	1.00E-04	0.026	2.60E-04	**0.01**	1			-	1.00E+03							11,738	350,909	11,358
PCB Total	I	2.00E+00	5.71E-04	-	-	1		0.14	1	2.40E-02	6.30E-06	1.70E-02	4.68E+02	7.80E+04	4.66E-08	1.10E+4	62.3	42.0	25.1			
Aroclor 1254	A/I	2.00E+00	5.71E-04	3.00E-05	-	1	3.00E-05	0.14	1	2.40E-02	6.10E-06	1.16E-02	7.80E+02	1.30E+05	1.91E-08	1.71E+4	62.3	65.6	NE	53.4		53.4
Benz[a]anthracene	I	1.00E-01	6.00E-05	-	-	1		0.13	1	2.60E-02	6.70E-06	4.91E-04	1.08E+03	1.80E+05	6.71E-10	9.13E+4	1,273	3,331	921			
Benzo[a]pyrene	I	1.00E+00	6.00E-04	3.00E-04	2.00E-06	1	3.00E-04	0.13	1	4.80E-02	5.60E-06	1.87E-05	3.54E+03	5.90E+05	2.37E-11	4.86E+5	127	1,768	119	546	30.3	28.7
Benzo[b]fluoranthene	I	1.00E-01	6.00E-05	-	-	1		0.13	1	4.80E-02	5.60E-06	2.69E-05	3.60E+03	6.00E+05	2.91E-11	4.39E+5	1,273	15,944	1,179			
Benzo[k]fluoranthene	I	1.00E-02	6.00E-06	-	-	1		0.13	1	4.80E-02	5.60E-06	2.39E-05	3.54E+03	5.90E+05	2.74E-11	4.52E+5	12,732	164,236	11,816			
Dibenz[a,h]anthracene	I	1.00E+00	6.00E-04	-	-	1		0.13	1	4.50E-02	5.20E-06	5.76E-06	1.14E+04	1.90E+06	4.13E-12	1.16E+6	127	409,394	127			
Indeno[1,2,3-c,d]pyrene	I	1.00E-01	6.00E-05	-	-	1		0.13	1	4.50E-02	5.20E-06	1.42E-05	1.20E+04	2.00E+06	5.62E-12	9.99E+5	1,273	36,126	1,230			
Naphthalene	C/I/A	-	3.40E-05	2.00E-02	3.00E-03	1	2.00E-02	0.13	1	6.00E-02	8.40E-06	1.80E-02	9.00E+00	1.50E+03	6.35E-06	9.39E+2		60.5	60.5	36,376	88.2	87.9

*chemical specific parameters found in Chemical Specific Parameters Spreadsheet at https://www.epa.gov/risk/regional-screening-levels-rsls
^chemical specific parameters found in Unpaved Road Traffic calculator at https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search
I: chemical specific parameters found in the IRIS at https://www.epa.gov/iris
C: chemical specific parameters found in Cal EPA at https://www.dtsc.ca.gov/AssessingRisk
A: chemical specific parameters found in Agency for Toxic Substances and Disease Registry Minimal Risk Levels (MRLs) at https://www.atsdr.cdc.gov/mrls/pdfs/atsdr_mrls.pdf
P: chemical specific parameters found in the Database of EPA PPRTVs at https://hhpprtv.ornl.gov/quickview/pprtv.php
NE = Not Evaluated