30% Remedial Design Basis of Design Report

Appendix L
Chemical Fate and Transport Modeling to Support Buried Contamination Evaluation

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ABBREVIATIONS

µg/kg	microgram per kilogram
µg/L	microgram per liter
BBP	butyl benzyl phthalate
BODR	*Basis of Design Report*
cm	centimeter
cm/yr	centimeter per year
cm^2/s	square centimeter per second
COC	contaminant of concern
cPAH	carcinogenic polycyclic aromatic hydrocarbon
FNC	federal navigation channel
f_{OC}	fraction organic carbon
ft	foot
g/cm^3	gram per cubic centimeter
HPAH	high-molecular-weight polycyclic aromatic hydrocarbon
HPCDD	heptachlorodibenzo-p-dioxin
HPCDF	heptachlorodibenzofuran
HxCDD	hexachlorodibenzo-p-dioxin
HxCDF	hexachlorodibenzofuran
K_d	equilibrium partition coefficient
K_{OC}	organic carbon partition coefficient
K_{OW}	octanol-water partition coefficient
L/kg	liter per kilogram
LDW	Lower Duwamish Waterway
MLLW	mean lower low water
mg/kg	milligram per kilogram
N/A	not applicable
ng/kg	nanogram per kilogram
OC	organic carbon
OCDD	octachlorodibenzodioxin
OCDF	octachlorodibenzofuran
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PDI	pre-design investigation
PeCDD	pentachlorodibenzo-p-dioxin
PeCDF	pentachlorodibenzofuran
RAA	remedial action area

RAL	remedial action level
RAO	remedial action objective
RC	recovery category
RD	remedial design
RM	river mile
SVOC	semivolatile organic compound
TCDD	tetrachlorodibenzo-p-dioxin
TCDF	tetrachlorodibenzofuran
TEQ	toxic equivalents
TOC	total organic carbon

1 Introduction

This appendix describes chemical transport modeling conducted to support the contaminated sediment remedial design (RD) for the middle reach of the Lower Duwamish Waterway (LDW). The purpose of this modeling was to evaluate the transport potential for dissolved phase contaminants of concern (COCs) to pose a long-term contamination potential to surface sediments in areas of contamination buried beneath cleaner sediment that does not require remedial action (i.e., surface sediment with concentrations less than remedial action levels [RALs]).

Buried contamination is defined as sediment having COC concentrations greater than the surface sediment RAL that is buried beneath 60 centimeters (cm; 2 feet) or more of sediment with concentrations that are less than RALs in subtidal areas or that is buried beneath 45 cm (1.5 feet) or more of sediment with concentrations that are less than surface RALs in intertidal areas. Therefore, these areas are located outside of RAL exceedance areas.[1] A total of 12 sediment core locations, not within RAL exceedance areas in the middle reach, meet this definition of buried contamination. The core locations and the associated COCs with subsurface sediment concentrations that exceed the surface sediment RAL are provided in Table L1-1 and are shown in Figure L1-1.

Table L1-1
Locations and COCs for Buried Contamination Evaluation

Core ID	Sample Year	RM	Area Type	RC	COCs Exceeding RAL	Depth Interval for Peak Concentration[a] (ft)	Location Notes
SC06	2004	3.40	Subtidal	2	Total PCBs	4 to 6	In Slip 4; near the early action area
LDW24-SC1559	2024	2.80	Subtidal	1	Total PCBs	9 to 10	Approximately 70 ft southwest of RAA 5B
DENW6721-SSED-SB-12A-2014	2014	2.79	Subtidal	1	Total PCBs	8 to 10	Approximately 20 ft upstream of RAA 9B
					Benzoic acid	2 to 4	
LDW24-IT1546	2024	2.73	Intertidal	2	Total PCBs	4.4 to 5.4	Approximately 20 ft northeast of RAA 9E
					Dioxin/Furan TEQ	6.4 to 7.5	
					Fluoranthene	2.5 to 3.4	

[1] Buried contamination cores within the daylight side slopes that will be dredged as part of remedial action areas (RAAs) that include dredging were excluded from the evaluation. It is preliminarily assumed that any potential buried contamination will be addressed through the dredging of side slopes and subsequent placement of residuals management cover. This will be further evaluated in the 60% Remedial Design.

Core ID	Sample Year	RM	Area Type	RC	COCs Exceeding RAL	Depth Interval for Peak Concentration[a] (ft)	Location Notes
LDW24-SC1515	2024	2.65	Shoal	3	Total PCBs	7.1 to 8.0	Approximately 30 ft upstream of RAA 11
LDW23-SC1156	2022	2.40	Shoal	3	Total PCBs	4.7 to 6.6	Approximately 150 ft upstream of RAA 22
LDW24-IT1426	2024	2.22	Intertidal	3	Total PCBs	5.4 to 6.4	Approximately 20 ft west of RAAs 24J
LDW-SC37	2006	2.68	Subtidal	2	Copper	2 to 4	In Slip 3; approximately 50 ft west of RAA 26A
					Lead	2 to 4	
					Zinc	2 to 4	
					Benzo(a)pyrene	1 to 2	
					Fluoranthene	2 to 4	
					Phenanthrene	2 to 4	
					Total HPAHs	2 to 4	
					cPAHs	1 to 2	
					1,2,4-trichlorobenzene	2 to 4	
					1,2-dichlorobenzene	2 to 4	
SC-01	2010	1.85	Subtidal	1	Total PCBs	6 to 7[b]	Approximately 180 ft west of RAA 30E
					Acenaphthene	6 to 7[b]	
					Fluoranthene	6 to 7[b]	
					BBP	4 to 5[b]	
SC-02	2010	1.83	Subtidal	1	Total PCBs	4 to 5[b]	Approximately 180 ft west of RAA 30E
					BBP	4 to 5[b]	
SC-032	2010	1.81	Subtidal	1	Total PCBs	5 to 6[b]	Approximately 220 ft west of RAA 30E
					Benzo(a)anthracene	4 to 5[b]	
					Chrysene	4 to 5[b]	
					Total HPAHs	4 to 5[b]	
LDW24-SC1323	2024	1.77	Shoaled	3	Total PCBs	9.7 to 10.7	Approximately 50 ft downstream of RAA 30E

Notes:

a. The peak concentration was determined using OC-normalized concentration for all COCs except for copper, lead, zinc, and benzoic acid.
b. Two feet were added to the depth intervals measured in 2010, considering 2 to 3 feet of deposited sediments on top of the sand cover were observed during the Phase I PDI.

BBP: butyl benzyl phthalate
COC: contaminant of concern
cPAH: carcinogenic polycyclic aromatic hydrocarbon
ft: foot
HPAH: high-molecular-weight polycyclic aromatic hydrocarbon
OC: organic carbon
PCB: polychlorinated biphenyl
PDI: pre-design investigation
RAA: remedial action area
RAL: remedial action level
RC: recovery category
RM: river mile
TEQ: toxic equivalents

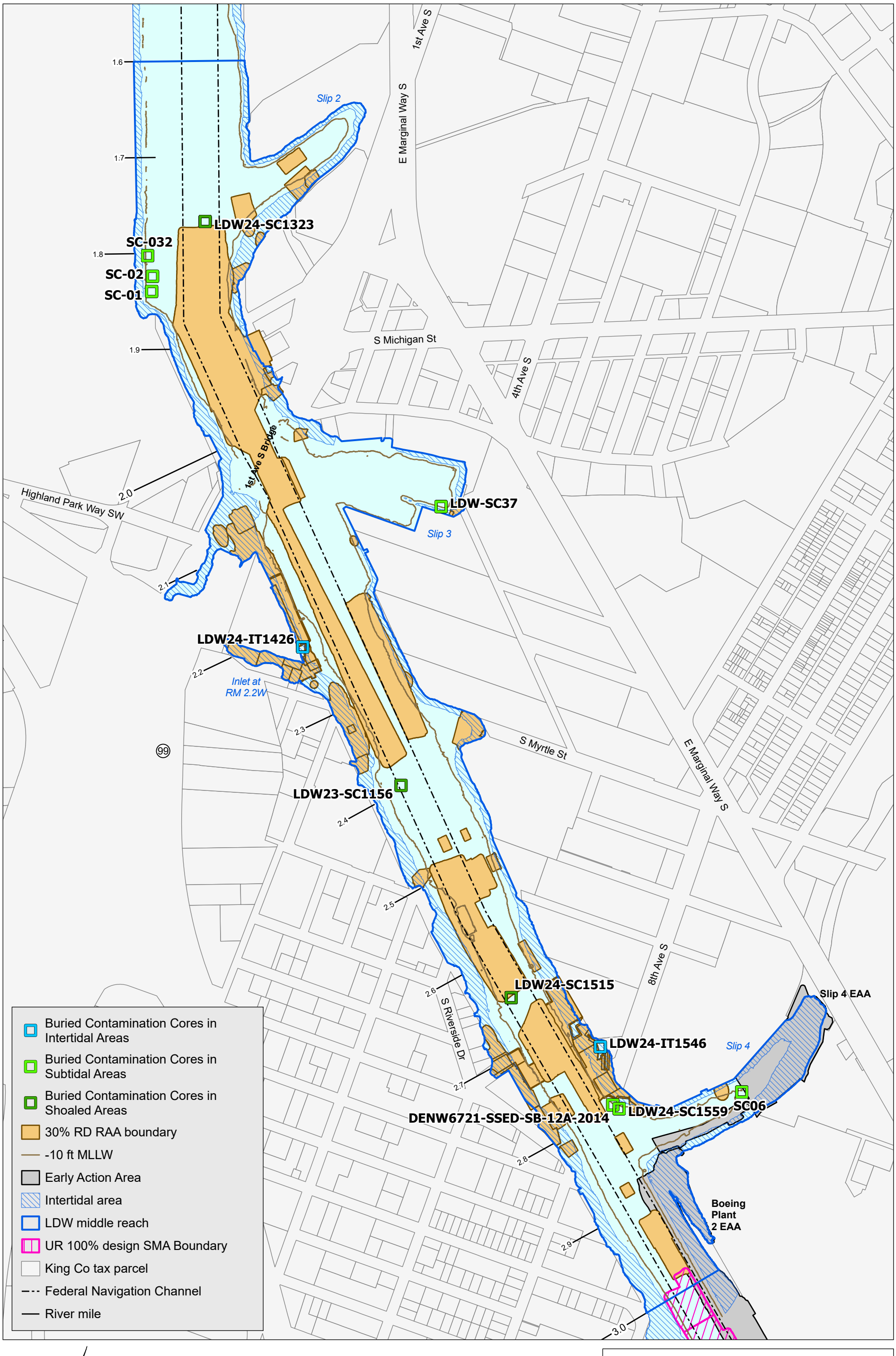

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Figure L1-1. Core Locations Evaluated for Buried Contamination

APPENDIX L - CHEMICAL FATE AND TRANSPORT MODELING TO SUPPORT BURIED CONTAMINATION EVALUATION
30% REMEDIAL DESIGN BASIS OF DESIGN REPORT FOR THE LDW MIDDLE REACH

OCTOBER 27, 2025

Prepared by craigh, 10/24/2025: W:\Projects\Duwamish AOC5\GIS\Maps and Analyses\Design\30 percent\30 Percent Design.aprx\Fig L1-1 7740 Cores Evaluated for Buried

Recovery category (RC), which is one factor that affects which RALs apply to an area, represents the projected potential of natural recovery for an area. Although natural recovery is anticipated to occur in areas designated as RC 2 and RC 3 due to the accumulation of deposited sediments, recovery may be limited in areas designated as RC 1. The RC for each sediment core location is provided in Table L1-1.

The objective of the present evaluation is to assess whether the transport of contaminants from the buried sediment could cause RAL exceedances in the future. A number of factors can affect the transport of contaminants within subsurface and surface sediment and influence the resulting concentrations over time in the surface sediment (i.e., top 10 cm). Two key factors that affect the potential for buried contamination to contaminate surface sediment over the long term due to dissolved phase chemical migration through the sediments are as follows:

1. The magnitude of the buried contaminant concentrations
2. The depth below the surface at which such concentrations are present

Higher COC concentrations present in buried sediments have a greater potential to result in an increase in concentrations in the surface sediment over the long term due to upward transport (i.e., driven by groundwater seepage) as compared with lower COC concentrations that are buried. Likewise, elevated COC concentrations present closer to the surface have a greater potential to result in an increase in concentrations in the surface sediment as compared to those same concentrations buried more deeply.

The one-dimensional model of chemical transport within sediment caps, CapSim (version 4.2.3; Reible 2023),[2] was used for the evaluation. Although this model was initially developed to support design of sediment caps, it can also be used to simulate transport within uncapped sediments. This model simulates the time-variable fate and transport of chemicals (dissolved and sorbed phases) under the processes of advection, diffusion/dispersion, biodegradation, bioturbation/bioirrigation, and exchange with the overlying surface water within a vertical column of sediment and cap material (if present). Details on the model structure and underlying theory and equations are provided in Lampert and Reible (2009), Go et al. (2009), the U.S. Environmental Protection Agency/U.S. Army Corps of Engineers capping guidance (Appendix B of Palermo et al. 1998), and Shen et al. (2018).

[2] A newer version of CapSim (version 4.2.6) is available; however, the functionality of the model used in these evaluations has not changed in the newer version.

2 Model Inputs and Approach

The section describes the model inputs and the simulation approach for the buried contamination evaluation. As described in Section 1, the CapSim model was used to simulate the transport of dissolved phase COCs within the sediment. The purpose of the evaluation was to assess whether buried contamination is likely to migrate to the surface, resulting in exceedances of the RALs assigned to various depth intervals, as follows:

- 0 to 10 cm in both intertidal and subtidal areas
- 0 to 45 cm in intertidal areas
- 0 to 60 cm in subtidal areas
- 0 to 2 feet below the authorized navigation depth within the overdredge depth interval in federal navigation channel (FNC) shoaled areas

2.1 Model Inputs

The model uses several input parameters that describe chemical-specific properties, sediment properties, and chemical mass transfer rates. Chemical-specific properties (e.g., molecular diffusivity[3] and organic carbon [OC] partition coefficients), bioturbation properties (depth and biodiffusion coefficients), reaction rates, and sedimentation (conservatively ignored), are consistent with the values used for the cap design modeling described in *Basis of Design Report* (BODR) Appendix H. As described in BODR Appendix H, the groundwater seepage rate (Darcy flux) in the middle reach is estimated to average 400 centimeters per year (cm/yr) and range from 100 cm/yr in the center of the channel up to 800 cm/yr nearshore. Because there is some uncertainty in the estimated seepage rates calculated from the regional modeling study, which may not fully represent localized rates, and the model is sensitive to seepage rates, the range of values was evaluated. For the three locations being evaluated for buried contamination within the FNC (i.e., LDW23-SC1156, LDW24-SC1515, and LDW24-SC1323), seepage rates of 100 cm/yr and 400 cm/yr were considered for this evaluation. For the remaining locations within the nearshore area or in the slips, seepage rates of 400 and 800 cm/yr were considered.

All core locations listed in Table L1-1 and the associated COCs were evaluated using CapSim. The thickness and properties (COC concentrations, fraction organic carbon [f_{OC}], dry bulk density, and porosity) of the model layers were specified to match those of the sampled core. The core profiles were developed based on sediment COC concentrations and total organic carbon (TOC) measured

[3] The model calculates an effective diffusion coefficient using a chemical-specific input value for the molecular diffusivity and an empirical equation based on the cap material porosity. The empirical relationship developed by Millington and Quirk (1961) is often used for coarse grained materials and the relationship described by Boudreau (1996) is used for finer grained sediments. Thus, sediment with porosity greater than 0.6 specified the relationship developed by Boudreau (1996) and porosity less than or equal to 0.6 used the relationship described by Millington and Quirk (1961).

throughout a sampled core. Dry bulk density and porosity were calculated from measured total solids content and an assumed particle density.

For cores in which sediment concentrations and properties were not analyzed for consecutive depth intervals, concentrations were linearly interpolated using those from the depth intervals immediately above and below the missing depth interval(s). Where surface sediment was not sampled at a core location, data from a nearby location (i.e., within 50 feet of the core being evaluated) were used to represent the COC concentrations and sediment properties (dry bulk density and porosity) in surface sediment at the given location, described as follows:

- DENW6721-SSED-SB-12A-2014: The upper 61 cm of sediment were not analyzed at this location; therefore, COC concentrations and sediment properties for this interval were specified using the 0- to 60-cm data from nearby core LDW23-SC1234 (i.e., slightly over 20 feet from the core being evaluated).
- LDW24-SC1515: The upper 64 cm of sediment were not analyzed at this location. Because no nearby cores were available (the nearest location was 90 feet away), COC concentrations and sediment properties for this interval were specified using data in the 64- to 125-cm interval of the same core.
- LDW24-IT1426: The upper 45 cm of sediment were not analyzed at this location; therefore, sediment concentrations and properties for this interval were specified using the 0- to 45-cm data from a nearby core LDW23-IT1121 (i.e., within 5 feet from the core being evaluated).
- LDW24-IT1546: The upper 45 cm of sediment COC concentrations are less than the 0- to 45-cm RAL but greater than the 0- to 10-cm RAL. A sample was not collected within the 0- to 10-cm depth interval for direct comparison to the 0- to 10-cm RAL, however. Therefore, 0- to 10-cm data from a nearby core LDW24-SS1546 (i.e., within 10 feet from the core being evaluated) were used to establish COC concentrations within the 0- to 10-cm depth interval at this location. The COC concentrations and sediment properties in 10- to 45-cm depth interval were subsequently adjusted (in conjunction with the 0- to 10-cm data) so that the depth-weighted average concentrations and sediment properties in the upper 45 cm of sediment were consistent with the measured values in the 0- to 45-cm sample at this location.
- SC06: The upper 61 cm of sediment COC concentrations are less than the 0- to 60-cm RAL but greater than the 0- to 10-cm RAL. A sample was not collected within the 0- to 10-cm depth interval for direct comparison to the 0- to 10- cm RAL, however. Therefore, 0- to 10-cm data from a nearby core LDW23-SS1281 (i.e., within 10 feet from the core being evaluated) were used to establish COC concentrations within the 0- to 10-cm depth interval at this location. The COC concentrations and sediment properties in 10- to 61-cm depth interval were subsequently adjusted (in conjunction with the 0- to 10-cm data) so that the depth-weighted average concentrations and sediment properties in the upper 61 cm of sediment were consistent with the measured values in the 0- to 61-cm sample at this location.

At locations SC-01, SC-02, and SC-032, a 1- to 1.5-foot sand cover was placed after sediment samples were collected in 2010; these post-dredge cores were collected following maintenance dredging at Terminal 115 (see Attachment I of the *Pre-Design Investigation Work Plan for the Lower Duwamish Waterway – Middle Reach* [Windward and Anchor QEA 2023]). Since then, 2 to 3 feet of sediments have deposited on top of the sand cover in these locations (Anchor QEA and Windward 2025). To be conservative, the model only represented 1 foot of sand cover in these locations and ignored the 2 to 3 feet of more recently deposited sediments on top of the cover. Because no data were collected from the sand cover, it was assumed that the sand cover had zero COC concentration at the time of placement. In addition, although the increase of bed thickness due to net deposition was not included in the model, it was assumed that in a dynamic system, TOC in the upper 10 cm of the cover (bioturbation zone) represents sand mixed with deposited sediment. The modeling at these three locations was conducted to simulate the transport of COCs into and through the sand cover over the long term.

The resulting core profiles used for the buried contamination evaluation are presented in Figures L.1.1 through L.1.12 in Attachment L.1, and a listing of model input parameters is provided in Tables L2.1 through L.2.12 in Attachment L.2. These inputs describe the characteristics of the sediment simulated with the model and include initial COC concentrations in porewater (calculated based on sediment concentrations using partitioning theory), porosity, dry bulk density, and f_{OC}. PCB concentrations measured using an Aroclor-based method were converted to equivalent estimated homolog concentrations,[4] consistent with the cap design modeling. The COC partition coefficients and molecular diffusivity values used in the buried contamination evaluation are identical to those in the engineered cap evaluation (see BODR Appendix H), except for the subset of COCs that were evaluated only in the buried contamination evaluation.[5] For completeness, the partition coefficients for all COCs included in the buried contamination evaluation are provided in Table L2-1. The molecular diffusivity values for these COCs are provided in Table L2-2. The remaining model input parameter values are the same as those used in the cap evaluation and can be found in BODR Appendix H.

[4] PCB concentrations were measured using an Aroclor-based method. To account for the range in mobility of the PCB congeners that make up an Aroclor, detected Aroclor PCB concentrations in sediment (mostly Aroclor-1248, -1254, and -1260, with occasionally Aroclor-1242) were converted to homolog concentrations based on the average fraction of each homolog group associated with each Aroclor developed from several published studies (Rushneck et al. 2004; Schulz-Bull et al. 1989; Frame et al. 1996; EPA 1995).

[5] These COCs are 1,2,4-trichlorobenzene, 1,2-dichlorobenzene, benzoic acid, copper, and lead.

Table L2-1
Partition Coefficients Used in the Buried Contamination Evaluation

Chemical Name[1,2]	Log K_{OC} (log L/kg)	Chemical Name[2,3]	Log K_{OC} (log L/kg)	Chemical Name	Log K_d (log L/kg)
PCB-Mono	5.1	1,2,3,6,7,8-HxCDF	6.9	Copper	3.5
PCB-Di	5.4	1,2,3,7,8,9-HxCDF	6.9	Lead	4.6
PCB-Tri	5.8	2,3,4,6,7,8-HxCDF	6.9	Zinc	4.1
PCB-Tetra	6.1	1,2,3,4,6,7,8-HpCDF	7.3		
PCB-Penta	6.4	1,2,3,4,7,8,9-HpCDF	7.3		
PCB-Hexa	6.7	OCDF	7.7		
PCB-Hepta	7.0	Acenaphthene	3.9		
PCB-Octa	7.3	Benzo(a)anthracene	5.6		
PCB-Nona	7.5	Benzo(a)pyrene	6.0		
PCB-Deca	7.8	Benzo(g,h,i)perylene	6.4		
2,3,7,8-TCDD	6.4	Chrysene	5.6		
1,2,3,7,8-PeCDD	6.9	Dibenzo(a,h)anthracene	6.6		
1,2,3,4,7,8-HxCDD	7.3	Fluoranthene	5.0		
1,2,3,6,7,8-HxCDD	7.3	Indeno(1,2,3-cd)pyrene	6.6		
1,2,3,4,7,8,9-HxCDD	7.3	Phenanthrene	4.5		
1,2,3,4,6,7,8-HpCDD	7.9	Pyrene	4.8		
OCDD	8.2	Total benzofluoranthenes[4]	6.2		
2,3,7,8-TCDF	6.1	BBP	4.8		
1,2,3,7,8-PeCDF	6.5	1,2,4-trichlorobenzene	3.9		
2,3,4,7,8-PeCDF	6.5	1,2-dichlorobenzene	3.4		
1,2,3,4,7,8-HxCDF	6.9	Benzoic acid[5]	-0.26		

Notes:

1. Partition coefficients for PCB homologs were developed as part of the Pre-Design Studies (Windward 2020). Partition coefficients for the remaining COCs were based on literature as follows: PAH compounds (EPA 2003), dioxin/furan congeners (Aberg et al. 2008), metals (EPA 2005), benzoic acid (EPA 1996), and the remaining SVOCs (EPA 2008). For SVOCs, K_{oc} were calculated using the literature K_{ow} values and the relationship between K_{ow} and K_{oc} based on Di Toro (1985). PCB homologs were modeled separately to account for differences in transport properties and summed to calculate total PCB concentrations for comparison to the RAL.
2. Seventeen dioxin/furan congeners were modeled separately and then summed to calculate dioxin/furan TEQ for comparison to the RAL.
3. PAH compounds were modeled separately and then summed to calculate cPAHs and total HPAHs for comparison to the respective RALs.
4. K_{oc} for total benzofluoranthenes were estimated by averaging K_{oc} from benzo(b)fluoranthene, benzo(b)fluoranthene, and benzo(b)fluoranthene.
5. Koc for benzoic acid was estimated as an ionizing organic chemical at pH of 7. See EPA 1996 for further details.

BBP: butyl benzyl phthalate
cPAH: carcinogenic polycyclic aromatic hydrocarbon
HPAH: high-molecular-weight polycyclic aromatic hydrocarbon
HpCDD: heptachlorodibenzo-p-dioxin
HpCDF: heptachlorodibenzofuran
HxCDD: hexachlorodibenzo-p-dioxin
HxCDF: hexachlorodibenzofuran
K_d: equilibrium partition coefficient

K_{OC}: organic carbon partition coefficient
K_{OW}: octanol-water partition coefficient
L/kg: liter per kilogram
OC: organic carbon
OCDD: octachlorodibenzodioxin
OCDF: octachlorodibenzofuran
PAH: polycyclic aromatic hydrocarbon
PCB: polychlorinated biphenyl
PeCDD: pentachlorodibenzo-p-dioxin
PeCDF: pentachlorodibenzofuran
RAL: remedial action level
SVOC: semivolatile organic compound
TCDD: tetrachlorodibenzo-p-dioxin
TCDF: tetrachlorodibenzofuran
TEQ: toxic equivalents

Table L2-2
Molecular Diffusivity Used in the Buried Contamination Evaluation

Chemical Name	Range of Values (cm^2/s)
PCB homologs	3.3E-06 to 6.5E-06
Dioxins/furans[1]	3.5E-06 to 4.6E-06
PAHs[2]	5.0E-05 to 7.6E-06
Metals[3]	2.4E-05 to 4.2E-05
Other SVOCs[4]	4.6E-06 to 7.8E-06
Benzoic acid	8.9 E-06

Notes:
1. Includes the 17 dioxin and dioxin-like compounds
2. Includes acenaphthene, benzo(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, pyrene, and total benzofluoranthenes
3. Includes copper, lead, and zinc
4. Includes BBP, 1,2,4-trichlorobenzene, and 1,2-dichlorobenzene

BBP: butyl benzyl phthalate
cm^2/s: square centimeter per second
PAH: polycyclic aromatic hydrocarbon
PCB: polychlorinated biphenyl
SVOC: semivolatile organic compound

2.2 Model Simulation Approach

The purpose of this modeling was to evaluate whether buried contamination has the potential to contaminate surface sediments[6] to a concentration greater than the RAL in the future through dissolved phase transport driven by groundwater seepage, diffusion/dispersion, and bioturbation.

[6] As described in Section 2, the surface sediment for the evaluation is defined as 0 to 10 cm, 0 to 45 cm, 0 to 60 cm, 0 to the navigation depth plus 2 feet, or a combination of the above intervals, depending on the location of the core (i.e., intertidal, subtidal, or shoaled area).

Conservatively, sedimentation was ignored in this evaluation, despite the fact that sedimentation in the river is ongoing, necessitating periodic maintenance dredging.

The model simulation was performed for 100 years,[7] which is consistent with the design life for the engineered cap (see BODR Appendix H). The model simulated the changes in COC concentration over time throughout the full thickness of the sediment bed (initial concentrations for each layer are shown in Figures L.1.1 through L.1.12 in Attachment L.1). Model-predicted concentrations at the end of the simulation were compared to the applicable RALs to evaluate whether buried contamination could result in RAL exceedances in the surface sediment within 100 years. RALs were applied as follows:

- Intertidal areas: model-predicted concentrations in the top 10 cm and top 45 cm of the sediment were compared to the corresponding RALs.
- Subtidal areas outside shoaled areas: model-predicted concentrations in the top 10 cm and (if applicable) top 60 cm of the sediment were compared to the corresponding RALs. The exception was for historical core locations SC-01, SC-02, and SC-032, where sand cover was placed in 2010. The comparison for these locations was only conducted for the top 10 cm of the simulated sand cover material, because the focus was to assess the potential for elevated COCs to migrate through the sand cover. The deposited sediments above the sand cover would meet both the top 10- and top 60-cm RAL if the COC concentrations within the top 10 cm of the sand cover are predicted to be below the RALs.
- Subtidal areas within shoaled areas: model-predicted concentrations at depths from the sediment surface to the authorized navigation depth and 2 feet below the navigation depth were compared to the RALs (consistent with the data segmentation used in the PDI).

[7] For SC-01, SC-02, and SC-032, simulations were performed for 115 years. The additional 15 years was included because the placement of the sand cover in the area took place approximately 15 years ago.

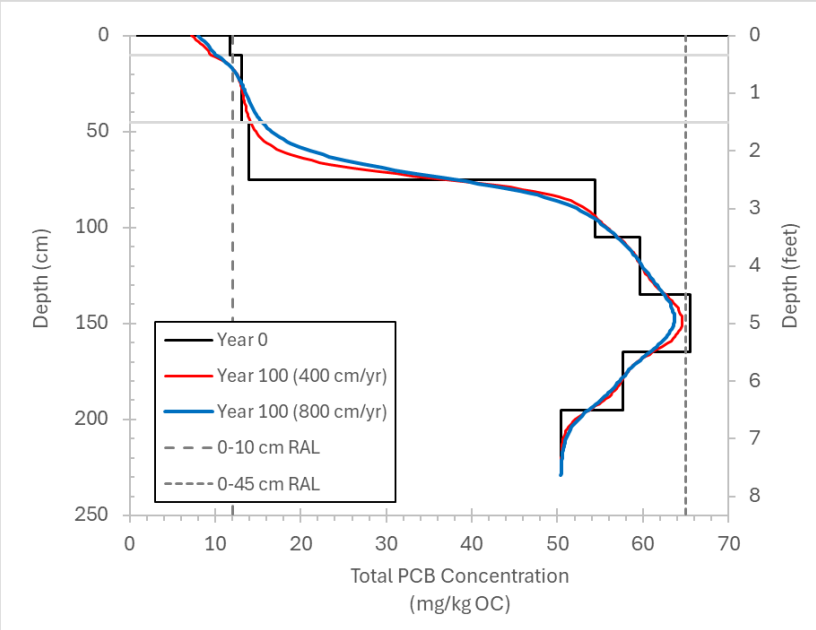
3 Model Results

Model-predicted sediment COC concentrations for cores within the intertidal, subarea, and shoaled areas are shown in Tables L3-1, L3-2, and L3-3, respectively, for both groundwater seepage rates evaluated, and results are discussed in the following subsections. Depth profiles of model-predicted COC concentrations were generated for several core locations to illustrate the vertical migration of buried contamination.

3.1 Intertidal Areas

For the intertidal areas, model results show that COC concentrations in the top 10 cm and top 45 cm of the sediment were predicted to be less than the respective RALs for more than 100 years for both core locations (Table L3-1). That is, COCs buried beneath 45 cm of cleaner sediment are not predicted to migrate to the surface sediment within 100 years at magnitudes that could cause RAL exceedances under groundwater seepage rates between 400 and 800 cm/yr. The model results for PCBs and fluoranthene at LDW24-IT1546, as shown in Figure L3-1, illustrate the predicted migration of COCs in the sediment. At Year 0, RAL exceedances of PCBs are buried beneath cleaner sediment with a peak PCB concentration of 66 milligrams per kilogram (mg/kg) OC (i.e., more than five times greater than the 0- to 10-cm RAL of 12 mg/kg OC) measured at the depth of 135 to 165 cm. The predicted PCB profiles at Year 100 show limited upward migration under the simulated range of seepage rates, with some smoothing of vertical concentration gradients due to the processes of diffusion and dispersion. Because PCBs partition relatively strongly to sediments, they do not migrate quickly through the sediments in dissolved phase. Therefore, PCBs that are buried beneath cleaner sediment are expected to remain buried at this location.

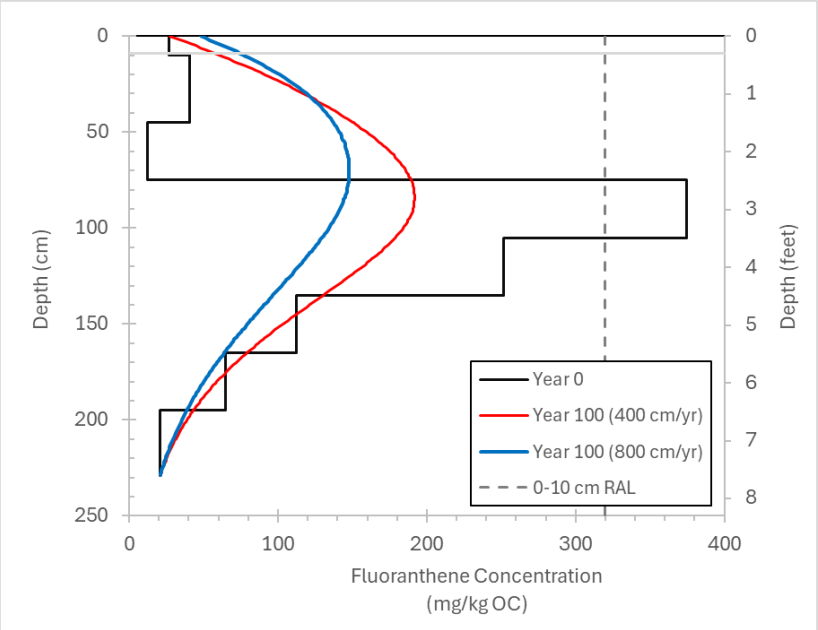
Figure L3-1
Depth Profiles of Total PCBs for LDW24-IT1546 at Year 0 and Year 100



Note:
The horizontal gray lines represent the sediment depths of 10 cm and 45 cm, which correspond to the depths over which the RALs apply (i.e., 0 to 10 cm and 0 to 45 cm).

Similarly, as shown in Figure L3-2, RAL exceedances of fluoranthene at Year 0 are buried beneath surface sediments at a depth of 75 to 105 cm, with a concentration of 370 mg/kg OC, which is 1.2 times greater than the 0- to 10-cm RAL of 320 mg/kg OC. Compared with PCBs, the model predicted a greater change in fluoranthene concentration profile over time, which is consistent with the fact that fluoranthene is more mobile than PCBs. The peak concentration is predicted to migrate further upward to some extent under the seepage rate of 800 cm/yr (and less so at 400 cm/yr), with greater effects from vertical mixing associated with diffusion and dispersion as compared to the predictions for PCBs. However, the predicted fluoranthene concentration in the upper 10 cm of sediment at Year 100 is much less than the RAL because of the relatively limited upward migration coupled with the attenuation from mixing and surface water exchange.

Figure L3-2
Depth Profiles of Fluoranthene for LDW24-IT1546 at Year 0 and Year 100



Note:
The horizontal gray line represents the sediment depth of 10 cm.

For LDW24-IT14261, concentrations in the top 45 cm sediment were based on the 0- to 45-cm data from LDW23-IT1121, as described in Section 2.1. Due to the low TOC of 0.37%, dry-weight PCB concentrations were compared to the dry-weight RAL. As shown in Table L3-1, the model-predicted dry-weight PCB concentration of 53 micrograms per kilogram (µg/kg) in the top 10 cm for both seepage rates evaluated is less than the dry-weight equivalent RAL of 130 µg/kg (when TOC is less than 0.5% or greater than 3.5%). Similarly, model-predicted, dry-weight PCB concentrations of 72 and 65 µg/kg in the top 45 cm for the seepage rates of 400 and 800 cm/yr, respectively, are less than the corresponding dry-weight equivalent RAL of 1,000 µg/kg. Therefore, PCBs that are buried beneath cleaner sediment are also expected to remain buried at this location.

Table L3-1
Buried Contamination Model Results: Model-Predicted Concentrations at Year 100 for Cores in Intertidal Areas

Core Location	Recovery Category	COC	Unit	Top 10 cm RAL[1]	Predicted Average Concentrations in the Top 10 cm of Sediment at Year 100		Top 45 cm RAL[1]	Predicted Average Concentrations in the Top 45 cm of Sediment at Year 100	
					400 cm/yr Seepage Rate	800 cm/yr Seepage Rate		400 cm/yr Seepage Rate	800 cm/yr Seepage Rate
LDW24-IT1546	2	Total PCBs	mg/kg OC	12	8.6	9.2	65	12	12
		Dioxin/furan TEQ	ng/kg	25	5.2	5.1	28	4.8	4.9
		Fluoranthene	mg/kg OC	320	43	62	--	--	--
LDW24-IT1426[2]	3	Total PCBs	µg/kg	130	53	53	1,000	72	65

Notes:

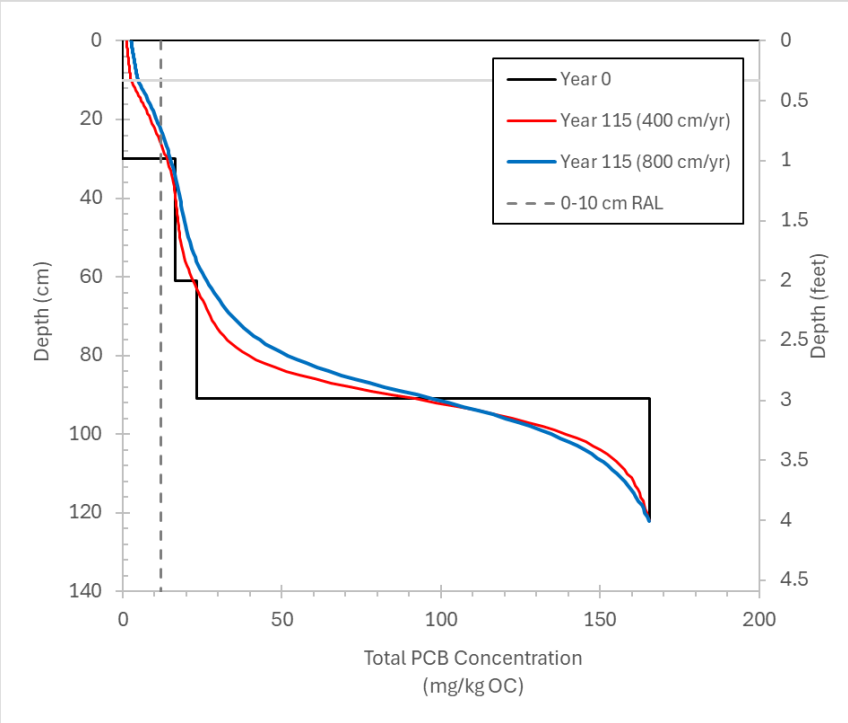
1. OC-normalized RALs were used for the evaluation when TOC is within the range of 0.5% to 3.5%. Dry-weight equivalent RALs were used when TOC is either less than 0.5% or greater than 3.5%.
2. As described in Section 2.1, data from the 0 to 45 cm segment in LDW23-IT1121 were used for the evaluation. Dry-weight equivalent RALs were used for PCBs due to low TOC (0.37%) measured in that segment.

--: not applicable
µg/kg: microgram per kilogram
cm: centimeter
cm/yr: centimeter per year
COC: contaminant of concern
mg/kg: milligram per kilogram
ng/kg: nanogram per kilogram
OC: organic carbon
PCB: polychlorinated biphenyl
RAL: remedial action level
TEQ: toxic equivalents
TOC: total organic carbon

3.2 Subtidal Areas

For the subtidal areas, model results show that COC concentrations in the top 10 cm and top 60 cm of the sediment are predicted to remain less than the respective RALs for more than 100 years in all seven subtidal cores for all applicable COCs. For the three historical locations SC-01, SC-02 and SC-032 where a sand cover was placed in 2010, the model simulation was performed for 115 years because the placement of the sand cover in the area took place approximately 15 years prior (see Section 2.2). The PCB concentrations with the top 10 cm of the cover are predicted to remain less than the RAL for 115 years. Figure L3-3 shows model-predicted PCB concentration profiles in SC-032. Limited PCB migration within the sand cover was predicted at the end of 115 years, with slightly higher PCB concentration near the bed surface under the 800 cm/yr seepage rate than the 400 cm/yr seepage rate. Overall, PCBs in the top 10 cm of the sand cover are predicted to remain less than the RAL under both seepage rates evaluated. Therefore, the buried PCBs are not expected to cause RAL exceedances in the depositing sediments on top of the sand cover. This model prediction is conservative because it ignores the sediment that has deposited on top of the cover; this additional sediment would provide additional attenuation, resulting in even lower concentrations at the surface.

Figure L3-3
Depth Profiles of Total PCBs for SC-032 at Year 0 and Year 115



Notes:
The horizontal gray line represents the sediment depth of 10 cm.
The 0- to 60-cm RAL of 195 mg/kg OC was not evaluated for the locations with sand cover, as discussed in Section 2.2.

Table L3-2
Buried Contamination Model Results: Model-Predicted Concentrations at Year 100 for Cores in Subtidal Areas

Core Location	Recovery Category	COC	Unit	Top 10 cm RAL	Predicted Average Concentrations in Top 10 cm of Sediment at Year 100[1]		Top 60 cm RAL[2]	Predicted Average Concentration in the Top 60 cm of sediment at Year 100[1]	
					400 cm/yr Seepage Rate	800 cm/yr Seepage Rate		400 cm/yr Seepage Rate	800 cm/yr Seepage Rate
SC06	2	Total PCBs	mg/kg OC	12	7.8	9.1	195	16	17
LDW24-SC1559	1	Total PCBs	mg/kg OC	12	4.0	4.2	12	5.3	5.4
DENW6721-SSED-SB-12A-2014	1	Total PCBs	mg/kg OC	12	5.8	6.1	12	8.9	9.5
		Benzoic acid	µg/kg	650	130	200	650	300	350
LDW-SC37	2	Copper	mg/kg	780	320	620	--	--	--
		Lead	mg/kg	900	79	90	--	--	--
		Zinc	mg/kg	820	190	340	--	--	--
		Benzo(a)pyrene	mg/kg OC	198	53	68	--	--	--
		Fluoranthene	mg/kg OC	320	90	140	--	--	--
		Phenanthrene	mg/kg OC	200	50	36	--	--	--
		Total HPAHs	mg/kg OC	1,920	530	670	--	--	--
		cPAHs	µg/kg	5,500	1,700	2,100	--	--	--
		1,2,4-trichlorobenzene	mg/kg OC	1.62	0.16	0.19	--	--	--
		1,2-dichlorobenzene	mg/kg OC	4.6	0.13	0.19	--	--	--
SC-01	1	Total PCBs	mg/kg OC	12	1.5	2.9	--	--	--
		Acenaphthene	mg/kg OC	16	5.5	7.5	--	--	--
		Fluoranthene	mg/kg OC	160	6.7	23	--	--	--
		BBP	mg/kg OC	4.9	0.81	0.99	--	--	--

Core Location	Recovery Category	COC	Unit	Top 10 cm RAL	Predicted Average Concentrations in Top 10 cm of Sediment at Year 100[1]		Top 60 cm RAL[2]	Predicted Average Concentration in the Top 60 cm of sediment at Year 100[1]	
					400 cm/yr Seepage Rate	800 cm/yr Seepage Rate		400 cm/yr Seepage Rate	800 cm/yr Seepage Rate
SC-02	1	Total PCBs	mg/kg OC	12	1.6	2.9	--	--	--
		BBP	mg/kg OC	4.9	0.72	0.78	--	--	--
SC-032	1	Total PCBs	mg/kg OC	12	1.9	3.7	--	--	--
		Benzo(a)anthracene	mg/kg OC	110	6.8	20	--	--	--
		Chrysene	mg/kg OC	110	6.8	21	--	--	--
		Total HPAHs	mg/kg OC	960	120	120	--	--	--

Notes:

1. Predicted sediment concentrations for SC-01, SC-02, and SC-032 were from the end of Year 115.
2. The top 60-cm RALs were not applicable to SC-01, SC-02, and SC-032 because the focus was to assess the potential for elevated COCs to migrate through the sand cover (see Section 2.2). The top 60-cm RALs were not applicable for LDW-SC37 because the core is located in an RC-2 area where RAL was only established for PCBs.

--: not applicable
µg/kg: microgram per kilogram
BBP: butyl benzyl phthalate
cm: centimeter
cm/yr: centimeter per year
COC: contaminant of concern
cPAH: carcinogenic polycyclic aromatic
HPAH: high-molecular-weight polycyclic aromatic hydrocarbon
mg/kg: milligram per kilogram
OC: organic carbon
PCB: polychlorinated biphenyl
RAL: remedial action level
RC: recovery category

3.3 Shoaled Areas

For the shoaled areas, model results show that COC concentrations in both the shoaled material above the FNC navigation depth and the 2-foot overdredge depth are predicted to be less than the respective RALs for more than 100 years at all three locations (Table L3-3) and for all applicable COCs.

Table L3-3
Buried Contamination Model Results: Model-Predicted Concentrations at Year 100 for Cores in Shoaled Areas

Core Location	Recovery Category	COC	RAL (mg/kg OC)	Shoaled Sediment Above Authorized FNC Depth			Authorized FNC Depth to 2 ft Below Authorized FNC Depth		
				Depth Interval (ft)	Predicted Average Sediment Concentration at Year 100		Depth Interval (ft)	Predicted Average Sediment Concentration at Year 100	
					100 cm/yr Seepage Rate	400 cm/yr Seepage Rate		100 cm/yr Seepage Rate	400 cm/yr Seepage Rate
LDW24-SC1515	3	Total PCBs	12	0 to 2.1	11	11	2.1 to 4.1	11.5	11.7
LDW23-SC1156	3	Total PCBs	12	0 to 2.7	3.9	4.1	2.7 to 4.7	11	11
LDW24-SC1323	3	Total PCBs	12	0 to 0.8	7.9	7.9	0.8 to 2.8	10	10

Notes:
cm: centimeter
cm/yr: centimeter per year
COC: contaminant of concern
FNC: federal navigation channel
ft: foot
mg/kg: milligram per kilogram
OC: organic carbon
PCB: polychlorinated biphenyl
RAL: remedial action level

4 Conclusions

Numerical modeling was conducted to evaluate transport potential of dissolved phase COCs in areas of the middle reach of the LDW where contamination buried beneath cleaner sediment is present. The results showed that model-predicted COC concentrations within the surface of the sediment are expected to remain less than the perspective RALs for more than 100 years. For a reference, the same buried contamination evaluation was conducted for the upper reach of the LDW (Anchor QEA and Windward 2024). The highest PCB concentration in the upper reach evaluation was nearly 700 mg/kg OC, which is four times higher than the highest PCBs (165 mg/kg OC) in the evaluation for the middle reach.

The results of these evaluations ignore the influence of future sedimentation. This is conservative because even at a modestly low rate, it can have a large impact on the future surface sediment concentrations. Given the observations of 2 to 3 feet of new sediment deposition on top of sand cover placed 15 years ago, the results of this evaluation are conservative. The evaluation will be further refined in the Intermediate (60%) RD to incorporate additional data that will be collected during the Phase III PDI sampling.

5 References

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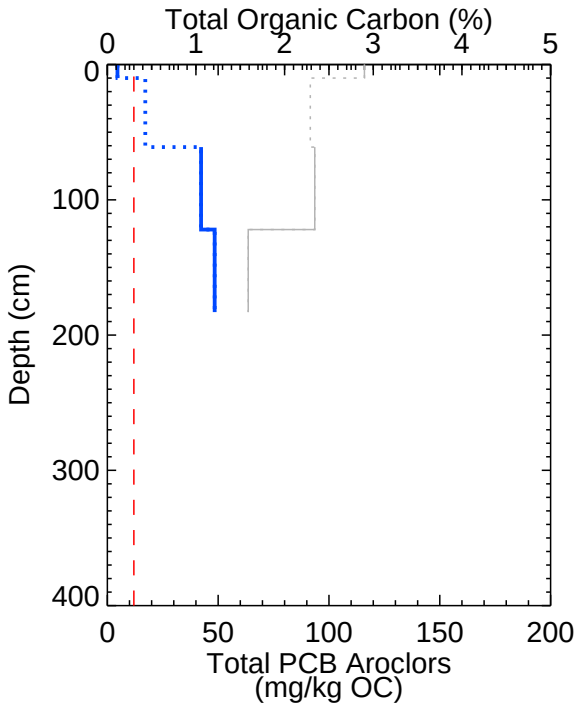
Appendix L – Chemical Fate and Transport Modeling to Support Buried Contamination Evaluation

Attachment L.1
Core Profiles for Buried Contamination Evaluation



Note:
Red dashed lines represent the 0 to 10 cm RAL, which is the most stringent RAL among other depth intervals.
Dotted lines represent interpolated concentration. Non-detects plotted at 1/2 MDL.

COC
Total Organic Carbon

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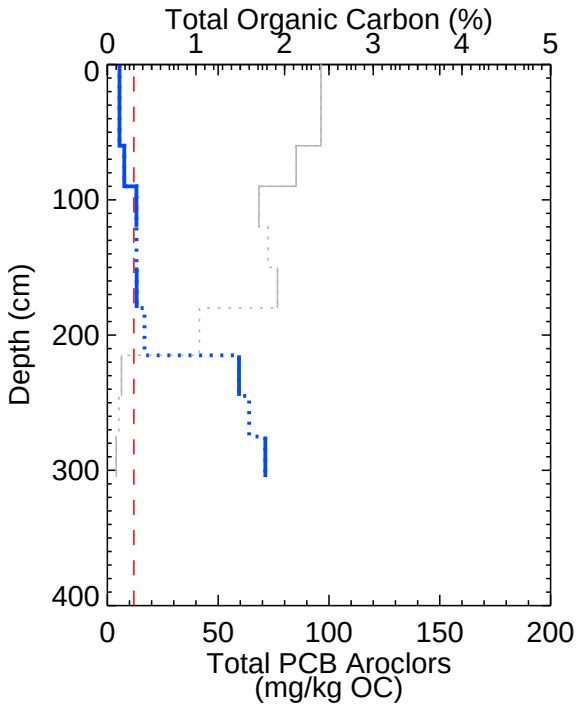
ANCHOR QEA

Figure L.1.1
Core Profiles for Buried Contamination Evaluation for SC06



Note:
Red dashed lines represent the 0 to 10 cm RAL, which is the most stringent RAL among other depth intervals.
Dotted lines represent interpolated concentration. Non-detects plotted at 1/2 MDL.

COC
Total Organic Carbon

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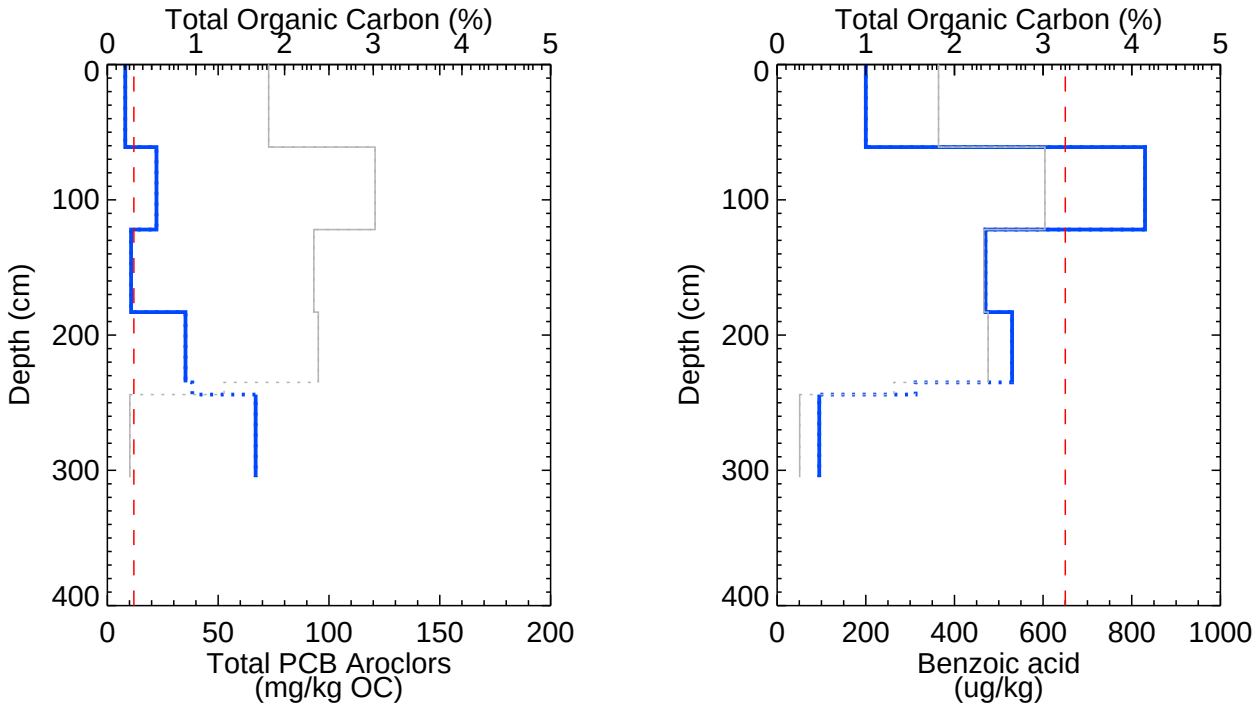
Figure L.1.2
Core Profiles for Buried Contamination Evaluation for LDW24-SC1559



Note:
Red dashed lines represent the 0 to 10 cm RAL, which is the most stringent RAL among other depth intervals.
Dotted lines represent interpolated concentration. Non-detects plotted at 1/2 MDL.

COC
Total Organic Carbon

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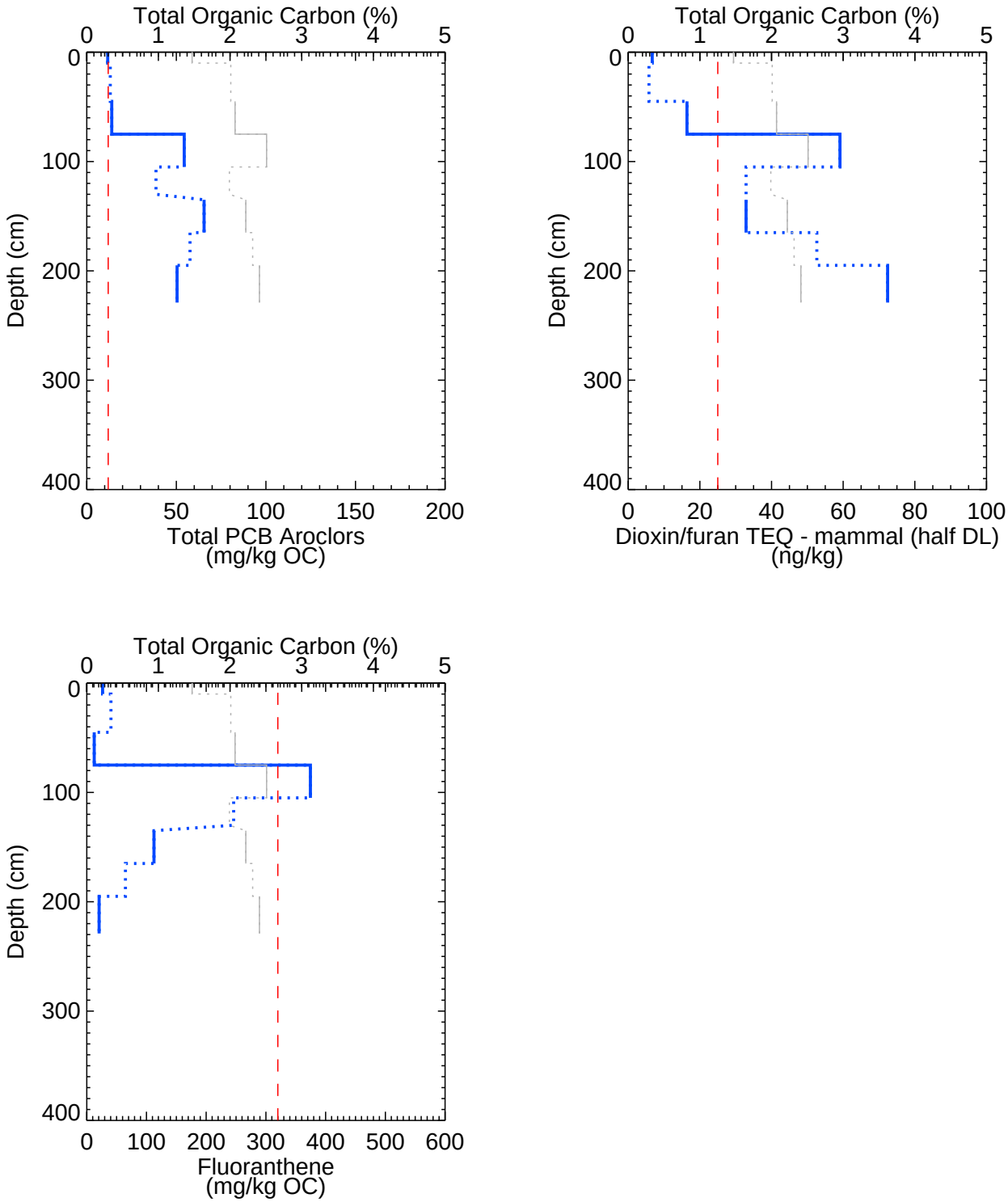
ANCHOR QEA

Figure L.1.3
Core Profiles for Buried Contamination Evaluation for DENW6721-SSED-SB-12A-2014



Note:
Red dashed lines represent the 0 to 10 cm RAL, which is the most stringent RAL among other depth intervals.
Dotted lines represent interpolated concentration. Non-detects plotted at 1/2 MDL.

COC
Total Organic Carbon

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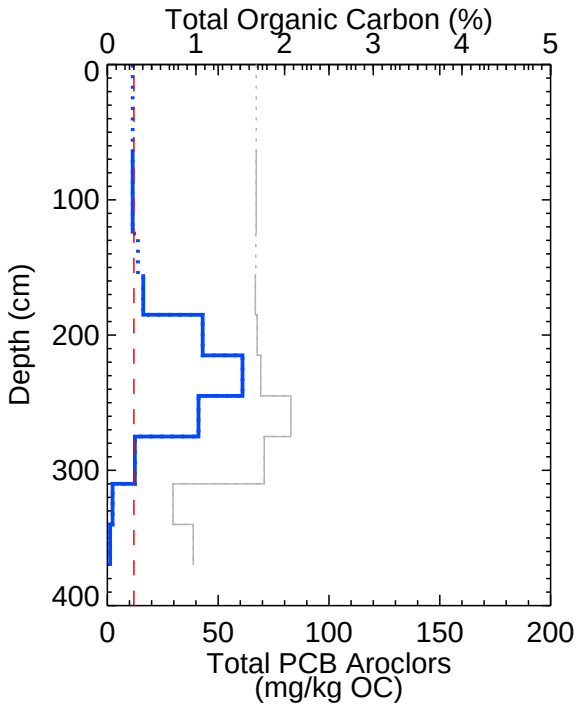
Figure L.1.4
Core Profiles for Buried Contamination Evaluation for LDW24-IT1546



Note:
Red dashed lines represent the 0 to 10 cm RAL, which is the most stringent RAL among other depth intervals.
Dotted lines represent interpolated concentration. Non-detects plotted at 1/2 MDL.

COC
Total Organic Carbon

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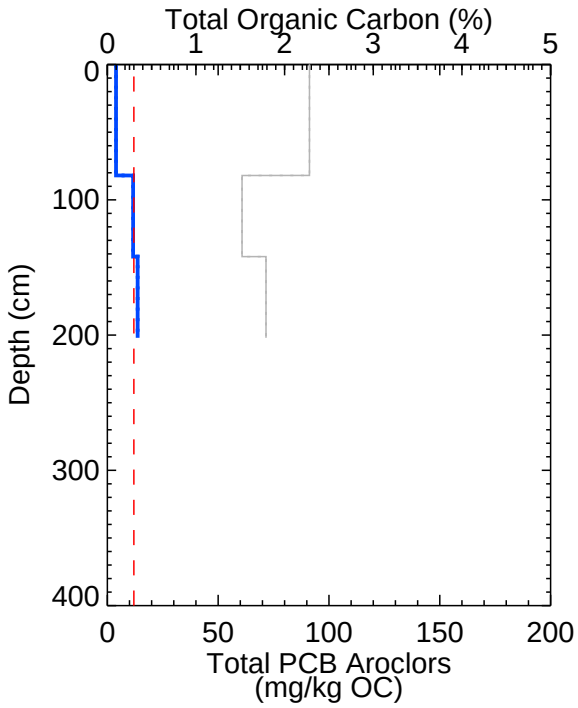
Figure L.1.5
Core Profiles for Buried Contamination Evaluation for LDW24-SC1515



Note:
Red dashed lines represent the 0 to 10 cm RAL, which is the most stringent RAL among other depth intervals.
Dotted lines represent interpolated concentration. Non-detects plotted at 1/2 MDL.

COC
Total Organic Carbon

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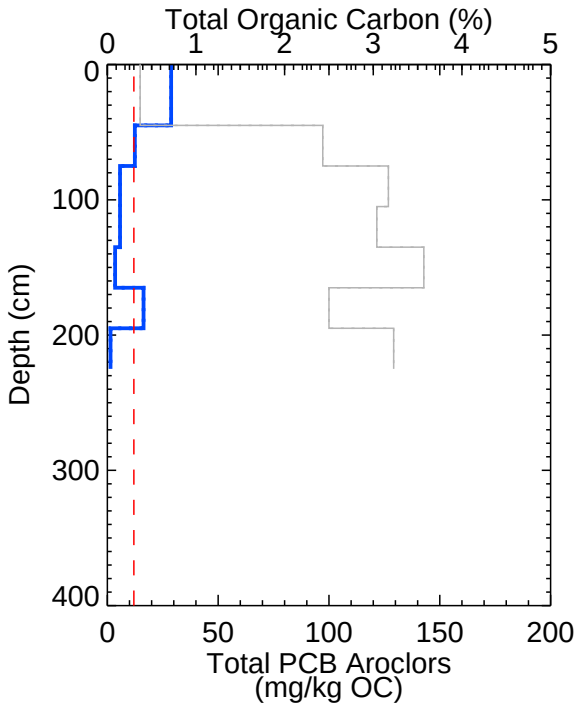
Figure L.1.6
Core Profiles for Buried Contamination Evaluation for LDW23-SC1156



Note:
Red dashed lines represent the 0 to 10 cm RAL, which is the most stringent RAL among other depth intervals.
Dotted lines represent interpolated concentration. Non-detects plotted at 1/2 MDL.

COC
Total Organic Carbon

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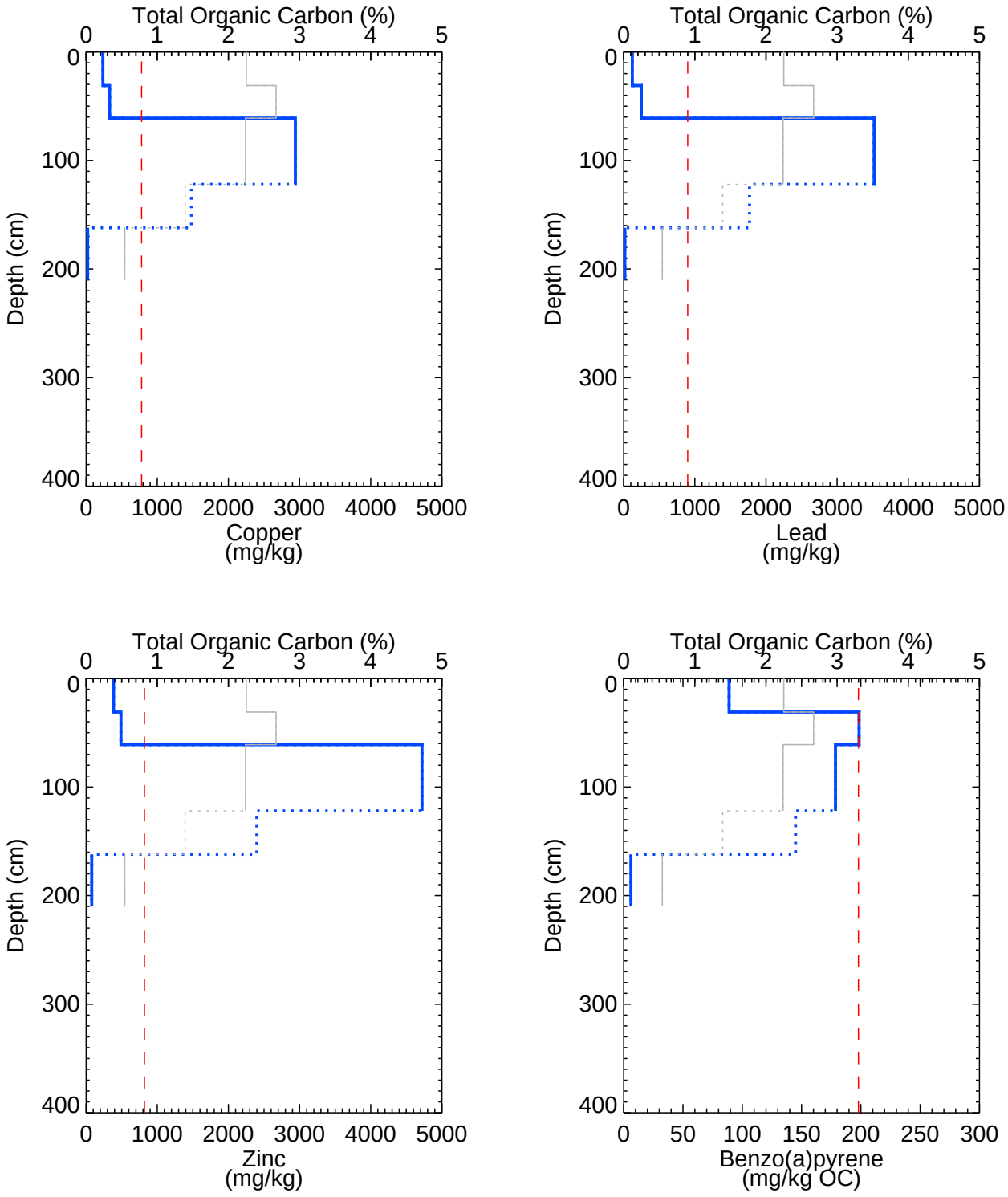
Figure L.1.7
Core Profiles for Buried Contamination Evaluation for LDW24-IT1426



Note:
Red dashed lines represent the 0 to 10 cm RAL, which is the most stringent RAL among other depth intervals.
Dotted lines represent interpolated concentration. Non-detects plotted at 1/2 MDL.

COC
Total Organic Carbon

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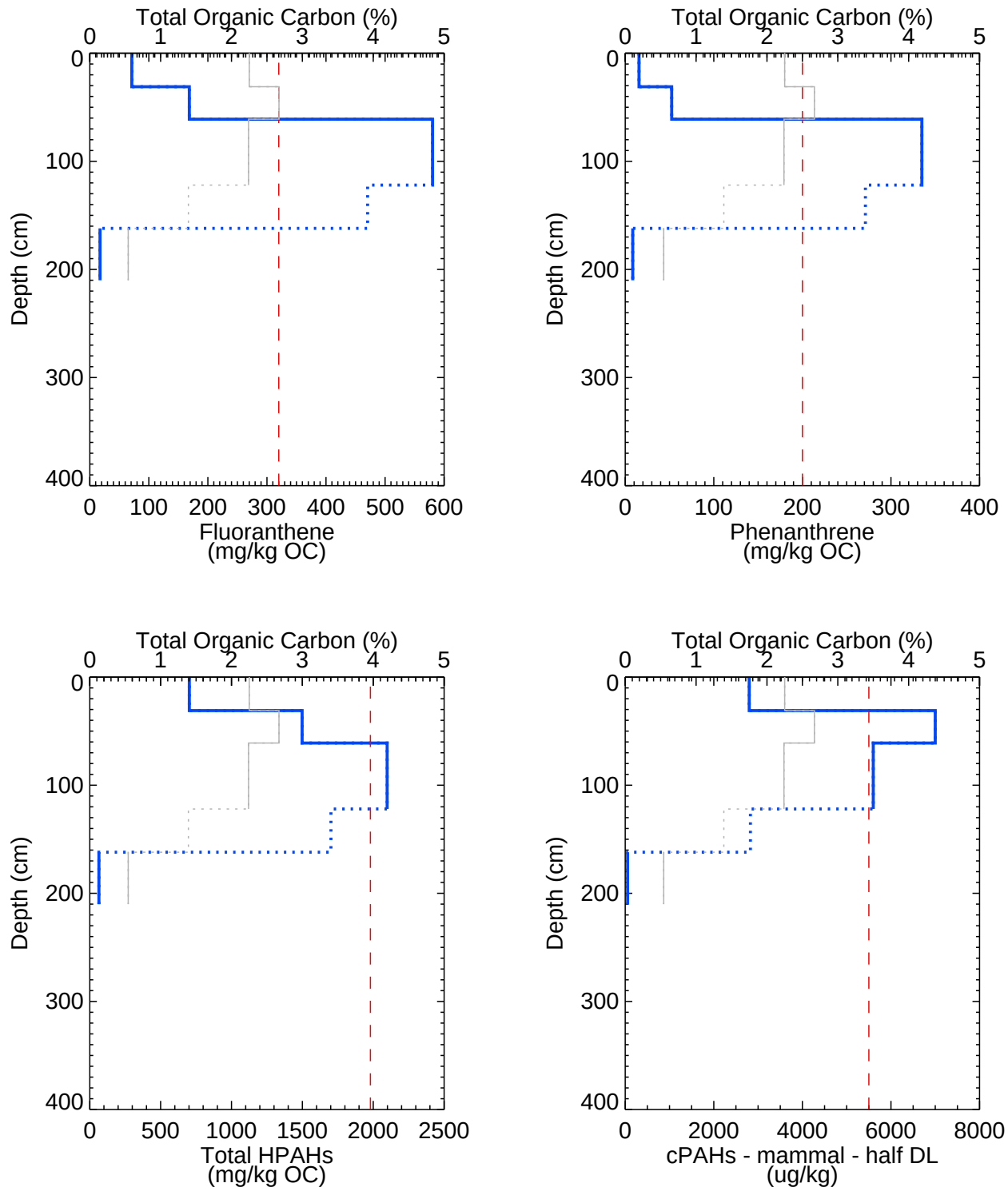
Figure L.1.8a
Core Profiles for Buried Contamination Evaluation for LDW-SC37



Note:
Red dashed lines represent the 0 to 10 cm RAL, which is the most stringent RAL among other depth intervals.
Dotted lines represent interpolated concentration. Non-detects plotted at 1/2 MDL.

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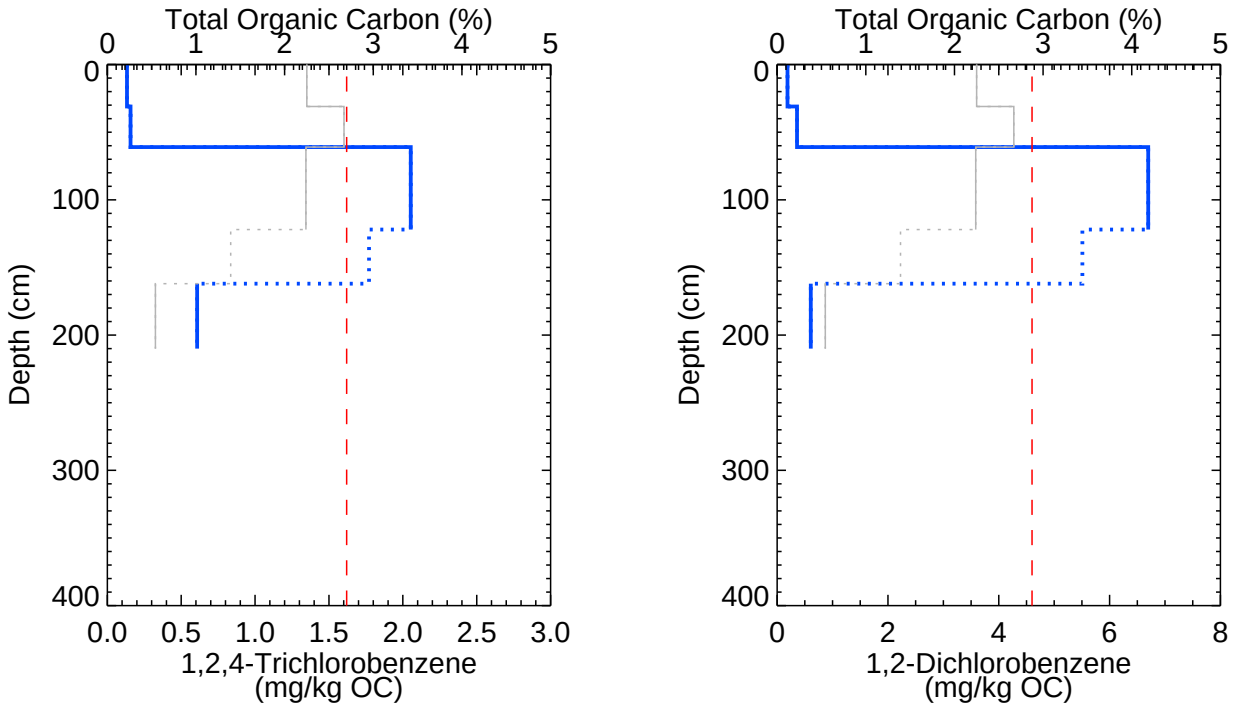
Figure L.1.8b
Core Profiles for Buried Contamination Evaluation for LDW-SC37



Note:
Red dashed lines represent the 0 to 10 cm RAL, which is the most stringent RAL among other depth intervals.
Dotted lines represent interpolated concentration. Non-detects plotted at 1/2 MDL.

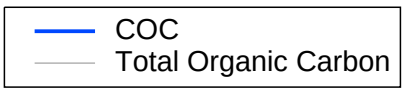


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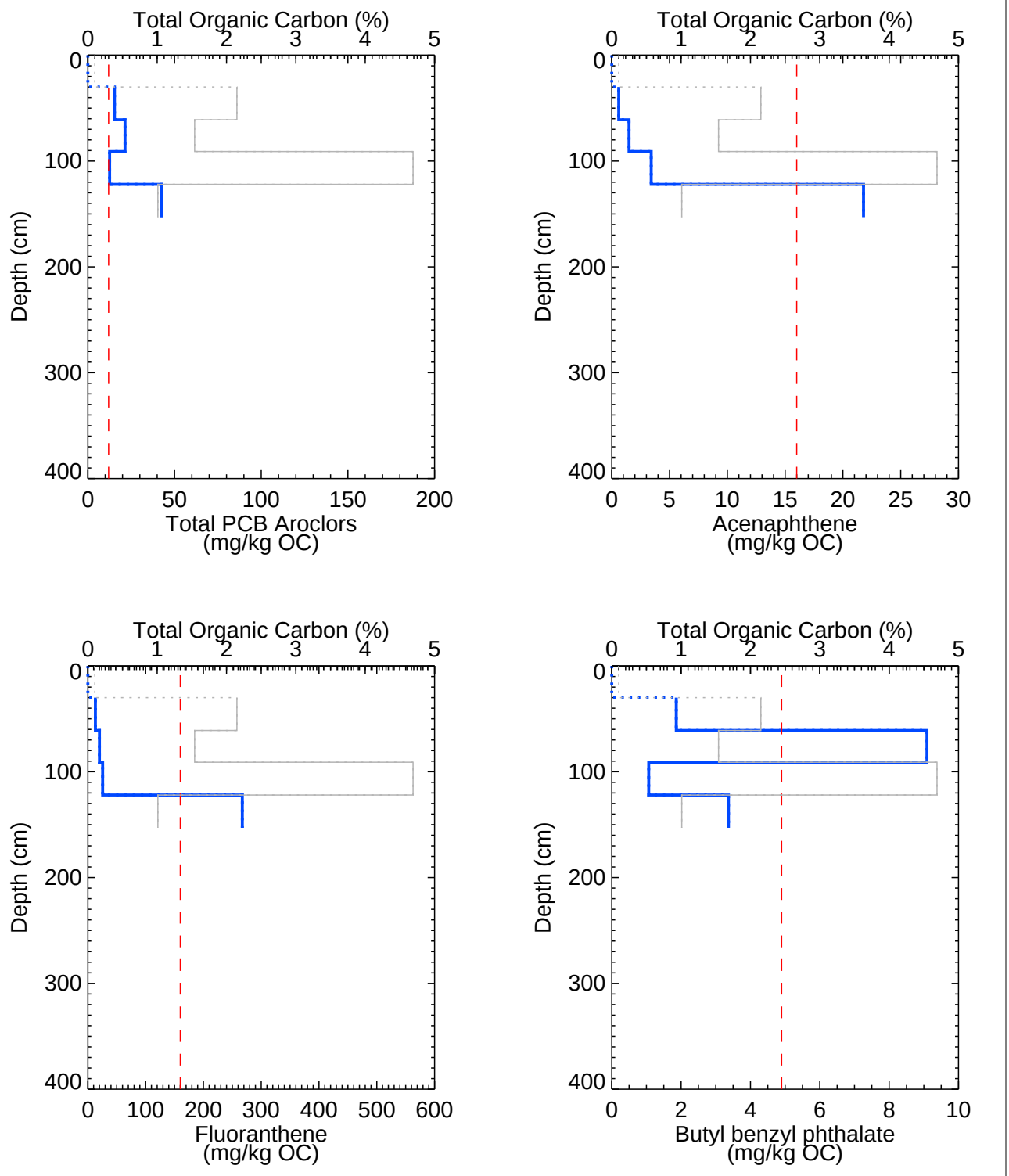
Figure L.1.8c
Core Profiles for Buried Contamination Evaluation for LDW-SC37



Note:
Red dashed lines represent the 0 to 10 cm RAL, which is the most stringent RAL among other depth intervals.
Dotted lines represent interpolated concentration. Non-detects plotted at 1/2 MDL.

COC
Total Organic Carbon

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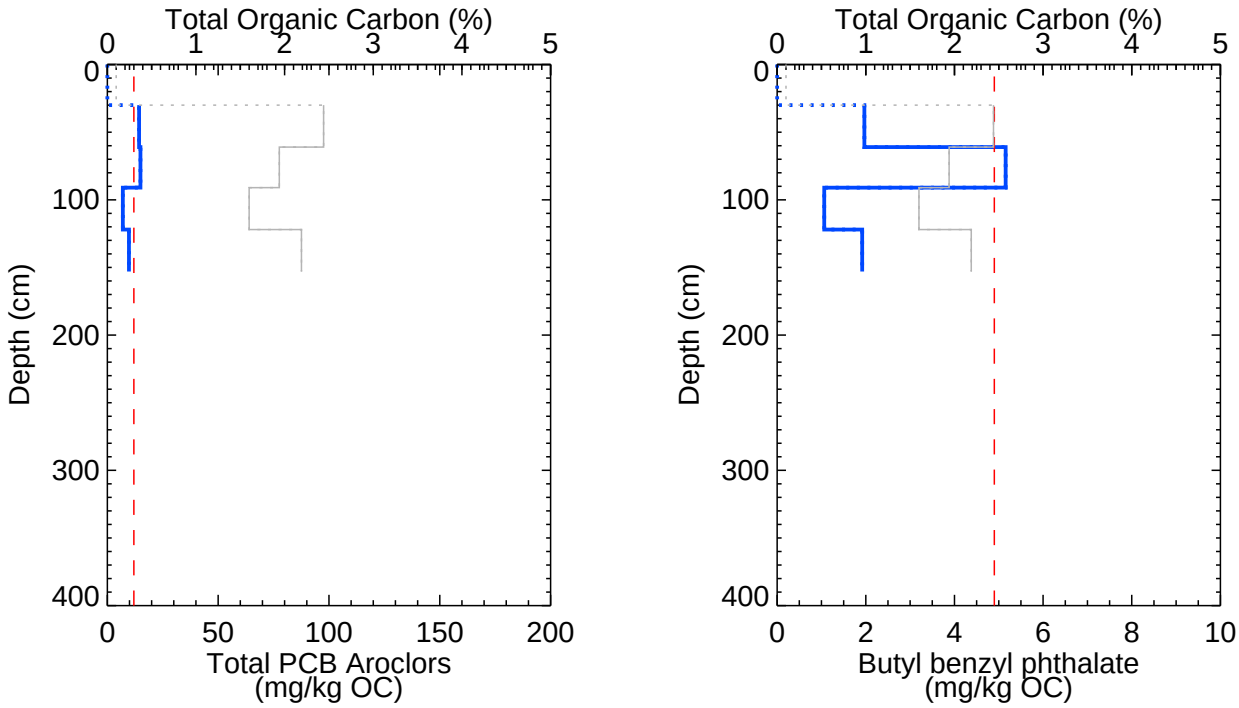
ANCHOR QEA

Figure L.1.9
Core Profiles for Buried Contamination Evaluation for SC-01



Note:
Red dashed lines represent the 0 to 10 cm RAL, which is the most stringent RAL among other depth intervals.
Dotted lines represent interpolated concentration. Non-detects plotted at 1/2 MDL.

COC
Total Organic Carbon

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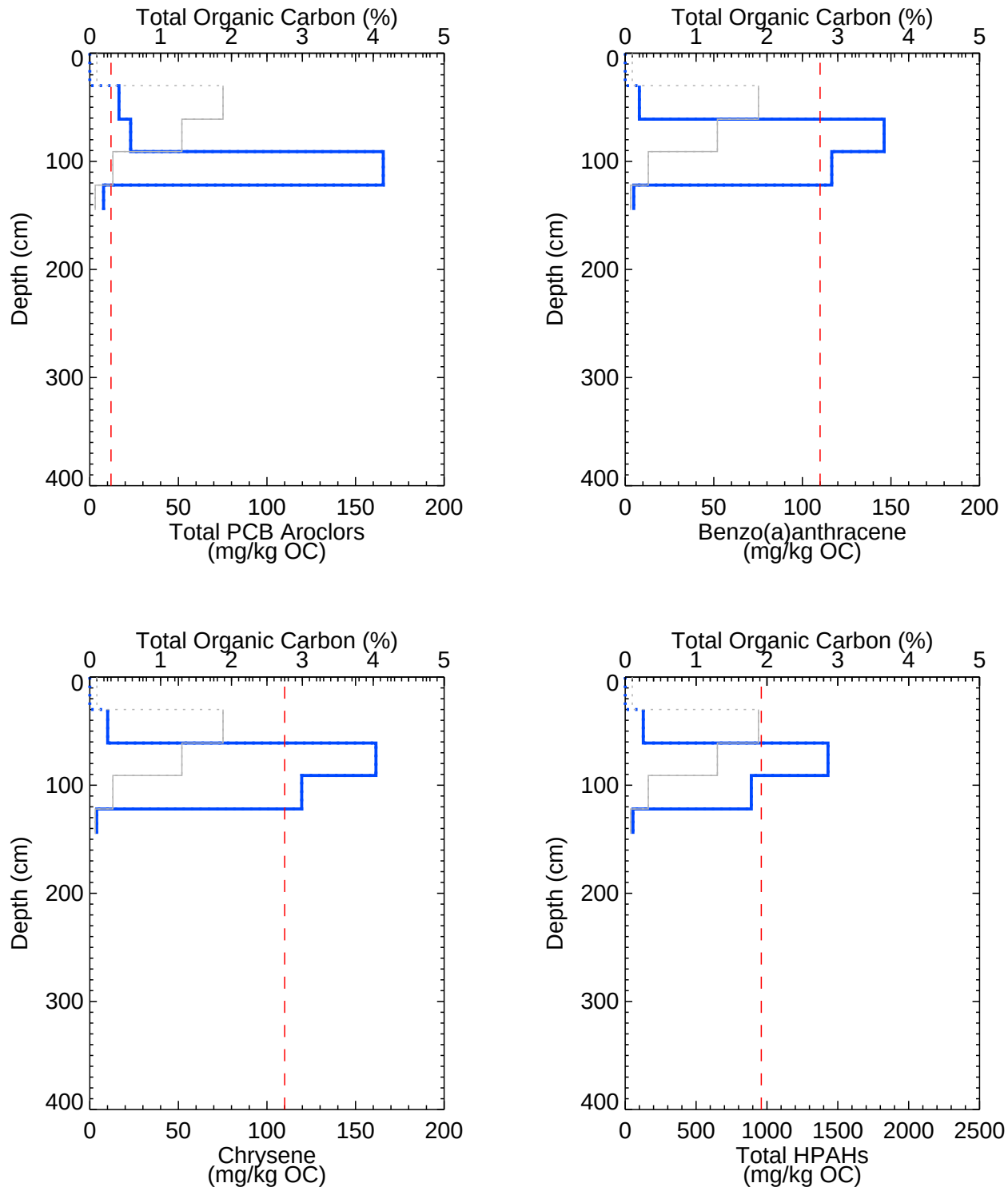
ANCHOR QEA

Figure L.1.10
Core Profiles for Buried Contamination Evaluation for SC-02



Note:
Red dashed lines represent the 0 to 10 cm RAL, which is the most stringent RAL among other depth intervals.
Dotted lines represent interpolated concentration. Non-detects plotted at 1/2 MDL.

COC
Total Organic Carbon

Publish Date: 10/24/2025 18:40 | User: wk
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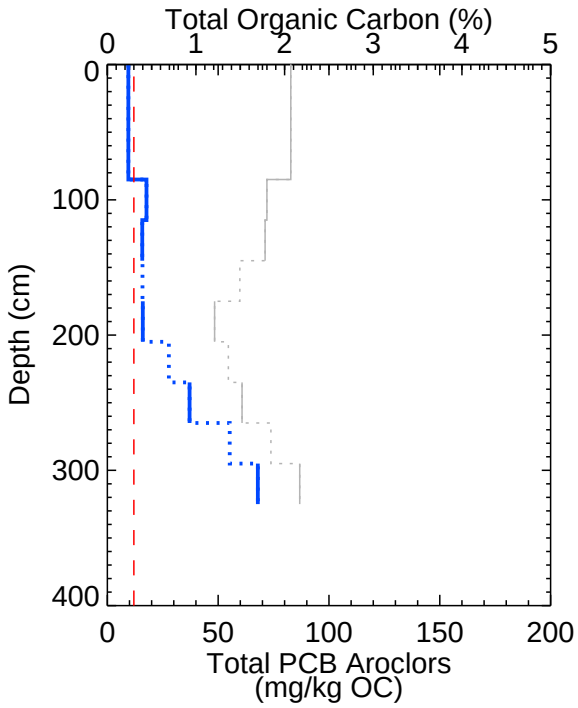
ANCHOR QEA

Figure L.1.11
Core Profiles for Buried Contamination Evaluation for SC-032



Note:
Red dashed lines represent the 0 to 10 cm RAL, which is the most stringent RAL among other depth intervals.
Dotted lines represent interpolated concentration. Non-detects plotted at 1/2 MDL.

COC
Total Organic Carbon

Publish Date: 10/24/2025 18:40 | User: wk
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Figure L.1.12
Core Profiles for Buried Contamination Evaluation for LDW24-SC1323

Appendix L – Chemical Fate and Transport Modeling to Support Buried Contamination Evaluation

Attachment L.2
Model Inputs for Buried Contamination Evaluation

Table L.2.1
Buried Contamination Modeling Input Parameter Values for Core Location SC06

Group	Analyte	Unit	0 to 10 cm	10 to 61 cm	61 to 122 cm	122 to 183 cm
PCBs	PCB-Mono	µg/L	5.2E-06	1.8E-05	3.6E-05	2.6E-05
	PCB-Di	µg/L	7.5E-05	2.7E-04	5.2E-04	2.6E-04
	PCB-Tri	µg/L	4.4E-04	1.5E-03	2.8E-03	6.8E-04
	PCB-Tetra	µg/L	7.5E-04	2.9E-03	6.4E-03	5.1E-03
	PCB-Penta	µg/L	5.8E-04	2.6E-03	6.8E-03	8.6E-03
	PCB-Hexa	µg/L	2.3E-04	8.4E-04	2.2E-03	2.8E-03
	PCB-Hepta	µg/L	5.8E-05	1.6E-04	3.6E-04	4.6E-04
	PCB-Octa	µg/L	6.0E-06	1.6E-05	3.4E-05	4.2E-05
	PCB-Nona	µg/L	3.5E-07	9.1E-07	1.9E-06	2.4E-06
	PCB-Deca	µg/L	1.3E-08	3.3E-08	7.0E-08	8.5E-08
Sediment Properties	Porosity[1]	--	0.77	0.64	0.58	0.38
	Dry Bulk Density[1]	g/cm^3	0.60	0.94	1.08	1.62
	f_{OC}	%	2.9	2.29	2.34	1.59

Notes:
PCB congener concentrations were calculated from the measured Aroclor PCB concentrations in sediment based on the composition of an Aroclor. See Section 2.1 for further detail.

1. Porosity and dry bulk density were estimated using measured total solids.

--: not applicable
µg/L: microgram per liter
cm: centimeter
f_{OC}: fraction organic carbon
g/cm^3: gram per cubic centimeter
PCB: polychlorinated biphenyl

Table L.2.2
Buried Contamination Modeling Input Parameter Values for Core Location LDW24-SC1559

Group	Analyte	Unit	0 to 60 cm	60 to 90 cm	90 to 120 cm	120 to 150 cm	150 to 180 cm	180 to 215 cm	215 to 245 cm	245 to 275 cm	275 to 305 cm
PCBs	PCB-Mono	µg/L	6.6E-06	9.2E-06	1.6E-05	1.5E-05	1.5E-05	2.0E-05	8.3E-05	8.4E-05	8.6E-05
	PCB-Di	µg/L	9.7E-05	1.3E-04	2.4E-04	2.3E-04	2.2E-04	3.1E-04	1.4E-03	1.3E-03	1.3E-03
	PCB-Tri	µg/L	5.7E-04	7.9E-04	1.4E-03	1.3E-03	1.3E-03	1.8E-03	8.4E-03	8.2E-03	7.9E-03
	PCB-Tetra	µg/L	9.3E-04	1.3E-03	2.3E-03	2.2E-03	2.2E-03	3.0E-03	1.3E-02	1.3E-02	1.3E-02
	PCB-Penta	µg/L	6.6E-04	9.1E-04	1.6E-03	1.6E-03	1.7E-03	2.1E-03	7.1E-03	7.8E-03	9.0E-03
	PCB-Hexa	µg/L	2.8E-04	3.9E-04	6.4E-04	6.6E-04	6.8E-04	8.2E-04	2.5E-03	2.9E-03	3.4E-03
	PCB-Hepta	µg/L	7.3E-05	1.0E-04	1.6E-04	1.6E-04	1.7E-04	2.0E-04	6.1E-04	6.9E-04	8.3E-04
	PCB-Octa	µg/L	7.5E-06	1.1E-05	1.6E-05	1.7E-05	1.8E-05	2.1E-05	6.2E-05	7.1E-05	8.4E-05
	PCB-Nona	µg/L	4.5E-07	6.3E-07	9.5E-07	1.0E-06	1.0E-06	1.2E-06	3.7E-06	4.2E-06	5.0E-06
	PCB-Deca	µg/L	1.7E-08	2.3E-08	3.5E-08	3.7E-08	3.8E-08	4.6E-08	1.4E-07	1.5E-07	1.8E-07
Sediment Properties	Porosity[1]	--	0.73	0.71	0.64	0.66	0.68	0.53	0.33	0.32	0.31
	Dry Bulk Density[1]	g/cm^3	0.69	0.75	0.93	0.87	0.82	1.21	1.75	1.78	1.80
	f_{OC}	%	2.41	2.13	1.71	1.82	1.92	1.04	0.16	0.13	0.10

Notes:
PCB congener concentrations were calculated from the measured Aroclor PCB concentrations in sediment based on the composition of an Aroclor. See Section 2.1 for further detail.
1. Porosity and dry bulk density were estimated using measured total solids.
--: not applicable:
µg/L: microgram per liter
cm: centimeter
f_{OC}: fraction organic carbon
g/cm^3: gram per cubic centimeter
PCB: polychlorinated biphenyl

Table L.2.3
Buried Contamination Modeling Input Parameter Values for Core Location DENW6721-SSED-SB-12A-2014

Group	Analyte	Unit	0 to 61 cm	61 to 122 cm	122 to 183 cm	183 to 235 cm	235 to 244 cm	244 to 305 cm
PCBs	PCB-Mono	µg/L	9.1E-06	1.8E-05	1.1E-05	3.5E-05	3.5E-05	3.3E-05
	PCB-Di	µg/L	1.2E-04	2.7E-04	1.7E-04	4.3E-04	4.2E-04	3.7E-04
	PCB-Tri	µg/L	7.1E-04	1.4E-03	9.4E-04	2.3E-03	2.1E-03	1.0E-03
	PCB-Tetra	µg/L	1.2E-03	3.5E-03	1.8E-03	4.4E-03	4.8E-03	7.7E-03
	PCB-Penta	µg/L	9.6E-04	3.7E-03	1.6E-03	4.3E-03	5.2E-03	1.3E-02
	PCB-Hexa	µg/L	4.4E-04	1.1E-03	5.4E-04	2.1E-03	2.2E-03	3.8E-03
	PCB-Hepta	µg/L	1.2E-04	1.6E-04	1.1E-04	5.6E-04	5.6E-04	4.7E-04
	PCB-Octa	µg/L	1.2E-05	1.5E-05	1.1E-05	5.9E-05	5.7E-05	3.9E-05
	PCB-Nona	µg/L	7.4E-07	8.4E-07	6.2E-07	3.5E-06	3.3E-06	2.2E-06
	PCB-Deca	µg/L	2.7E-08	3.0E-08	2.3E-08	1.3E-07	1.2E-07	7.4E-08
SVOCs	Benzoic acid	µg/L	2.0E+04	5.0E+04	3.7E+04	4.1E+04	4.3E+04	6.8E+04
Sediment Properties	Porosity[1]	--	0.70	0.70	0.69	0.69	0.52	0.29
	Dry Bulk Density[1]	g/cm^3	0.77	0.79	0.81	0.82	1.24	1.85
	f_{OC}	%	1.82	3.02	2.33	2.38	1.32	0.25

Notes:
PCB congener concentrations were calculated from the measured Aroclor PCB concentrations in sediment based on the composition of an Aroclor. See Section 2.1 for further detail.

1. Porosity and dry bulk density were estimated using measured total solids.

--: not applicable
µg/L: microgram per liter
cm: centimeter
f_{OC}: fraction organic carbon
g/cm^3: gram per cubic centimeter
PCB: polychlorinated biphenyl
SVOC: semivolatile organic compound

Table L.2.4
Buried Contamination Modeling Input Parameter Values for Core Location LDW24-IT1546

Group	Analyte	Unit	0 to 10 cm	10 to 45 cm	45 to 75 cm	75 to 105 cm	105 to 135 cm	135 to 165 cm	165 to 195 cm	195 to 229 cm
PCBs	PCB-Mono	µg/L	1.2E-05	1.4E-05	1.6E-05	6.2E-05	6.8E-05	7.5E-05	6.9E-05	6.4E-05
	PCB-Di	µg/L	1.8E-04	2.0E-04	2.2E-04	9.1E-04	1.0E-03	1.1E-03	1.1E-03	1.0E-03
	PCB-Tri	µg/L	9.9E-04	1.1E-03	1.3E-03	5.3E-03	6.0E-03	6.7E-03	6.4E-03	6.1E-03
	PCB-Tetra	µg/L	1.8E-03	2.0E-03	2.2E-03	9.1E-03	1.0E-02	1.2E-02	1.1E-02	9.6E-03
	PCB-Penta	µg/L	1.6E-03	1.6E-03	1.8E-03	7.0E-03	7.8E-03	8.7E-03	7.4E-03	6.2E-03
	PCB-Hexa	µg/L	6.1E-04	7.1E-04	7.2E-04	2.7E-03	2.9E-03	3.1E-03	2.7E-03	2.3E-03
	PCB-Hepta	µg/L	1.5E-04	1.9E-04	1.8E-04	6.6E-04	6.8E-04	7.1E-04	6.3E-04	5.7E-04
	PCB-Octa	µg/L	1.5E-05	1.9E-05	1.9E-05	6.7E-05	6.9E-05	7.1E-05	6.4E-05	5.8E-05
	PCB-Nona	µg/L	8.7E-07	1.1E-06	1.1E-06	3.9E-06	4.0E-06	4.2E-06	3.8E-06	3.4E-06
	PCB-Deca	µg/L	3.2E-08	4.2E-08	4.1E-08	1.5E-07	1.5E-07	1.5E-07	1.4E-07	1.3E-07
Dioxins/ Furans	2,3,7,8-TCDD	µg/L	3.5E-09	1.7E-09	1.1E-08	1.6E-08	2.2E-08	3.0E-08	2.7E-08	2.5E-08
	1,2,3,7,8-PeCDD	µg/L	7.1E-09	6.6E-09	1.3E-08	2.4E-08	3.2E-08	4.1E-08	4.6E-08	5.1E-08
	1,2,3,4,7,8-HxCDD	µg/L	3.7E-09	3.6E-09	6.9E-09	1.3E-08	1.4E-08	1.5E-08	1.8E-08	2.1E-08
	1,2,3,6,7,8-HxCDD	µg/L	1.8E-08	1.4E-08	3.0E-08	7.5E-08	7.0E-08	6.5E-08	1.1E-07	1.6E-07
	1,2,3,7,8,9-HxCDD	µg/L	1.0E-08	7.9E-09	1.5E-08	3.3E-08	3.7E-08	4.2E-08	6.2E-08	8.1E-08
	1,2,3,4,6,7,8-HpCDD	µg/L	1.7E-07	1.2E-07	3.7E-07	1.5E-06	9.9E-07	4.3E-07	1.1E-06	1.7E-06
	OCDD	µg/L	8.5E-07	4.9E-07	1.4E-06	6.7E-06	4.3E-06	1.7E-06	3.9E-06	6.0E-06
	2,3,7,8-TCDF	µg/L	5.3E-08	3.7E-08	6.4E-08	1.1E-07	1.2E-07	1.3E-07	1.2E-07	1.0E-07
	1,2,3,7,8-PeCDF	µg/L	1.1E-08	2.0E-08	2.9E-08	6.1E-08	5.6E-08	5.0E-08	4.1E-08	3.3E-08
	2,3,4,7,8-PeCDF	µg/L	6.2E-08	1.2E-08	7.8E-08	1.4E-07	1.4E-07	1.4E-07	1.3E-07	1.2E-07
	1,2,3,4,7,8-HxCDF	µg/L	3.2E-08	2.1E-08	4.7E-08	9.2E-08	1.0E-07	1.2E-07	1.0E-07	8.7E-08
	1,2,3,6,7,8-HxCDF	µg/L	1.4E-08	6.9E-09	1.7E-08	3.5E-08	3.9E-08	4.5E-08	4.0E-08	3.7E-08
	1,2,3,7,8,9-HxCDF	µg/L	7.6E-09	4.4E-09	1.5E-08	3.5E-08	2.9E-08	2.2E-08	2.1E-08	2.0E-08
	2,3,4,6,7,8-HxCDF	µg/L	1.7E-08	2.3E-09	2.4E-08	5.0E-08	5.4E-08	5.9E-08	5.4E-08	4.9E-08

Group	Analyte	Unit	0 to 10 cm	10 to 45 cm	45 to 75 cm	75 to 105 cm	105 to 135 cm	135 to 165 cm	165 to 195 cm	195 to 229 cm
	1,2,3,4,6,7,8-HpCDF	µg/L	1.1E-07	6.6E-08	1.3E-07	2.9E-07	3.0E-07	3.1E-07	3.1E-07	3.1E-07
	1,2,3,4,7,8,9-HpCDF	µg/L	1.0E-08	5.1E-09	1.1E-08	2.3E-08	2.8E-08	3.5E-08	3.2E-08	2.9E-08
	OCDF	µg/L	1.1E-07	8.7E-08	1.1E-07	2.3E-07	2.4E-07	2.6E-07	2.4E-07	2.2E-07
PAHs	Fluoranthene	µg/L	2.7E-01	4.1E-01	1.3E-01	3.8E+00	2.5E+00	1.1E+00	6.5E-01	2.1E-01
Sediment Properties	Porosity[1]	--	0.65	0.73	0.72	0.70	0.71	0.72	0.72	0.72
	Dry Bulk Density[1]	g/cm^3	0.90	0.71	0.73	0.78	0.76	0.73	0.74	0.74
	f_{OC}	%	1.47	2.01	2.07	2.51	2.37	2.22	2.32	2.41

Notes:
PCB congener concentrations were calculated from the measured Aroclor PCB concentrations in sediment based on the composition of an Aroclor. See Section 2.1 for further detail.

1. Porosity and dry bulk density were estimated using measured total solids.

--: not applicable
µg/L: microgram per liter
cm: centimeter
f_{OC}: fraction organic carbon
g/cm^3: gram per cubic centimeter
HpCDD: heptachlorodibenzo-p-dioxin
HpCDF: heptachlorodibenzofuran
HxCDD: hexachlorodibenzo-p-dioxin
HxCDF: hexachlorodibenzofuran
OCDD: octachlorodibenzodioxin
OCDF: octachlorodibenzofuran
PAH: polycyclic aromatic hydrocarbon
PCB: polychlorinated biphenyl
PeCDD: pentachlorodibenzo-p-dioxin
PeCDF: pentachlorodibenzofuran
TCDD: tetrachlorodibenzo-p-dioxin
TCDF: tetrachlorodibenzofuran

Table L.2.5
Buried Contamination Modeling Input Parameter Values for Core Location LDW24-SC1515

Group	Analyte	Unit	0 to 64 cm	64 to 125 cm	125 to 155 cm	155 to 185 cm	185 to 215 cm	215 to 245 cm	245 to 275 cm	275 to 310 cm	310 to 340 cm	340 to 370 cm
PCBs	PCB-Mono	µg/L	1.4E-05	1.4E-05	1.6E-05	1.9E-05	5.3E-05	7.7E-05	5.3E-05	1.6E-05	3.2E-06	2.0E-06
	PCB-Di	µg/L	2.0E-04	2.0E-04	2.5E-04	2.9E-04	8.5E-04	1.3E-03	8.8E-04	2.7E-04	5.3E-05	3.5E-05
	PCB-Tri	µg/L	1.2E-03	1.2E-03	1.5E-03	1.7E-03	5.2E-03	7.9E-03	5.4E-03	1.7E-03	3.3E-04	2.3E-04
	PCB-Tetra	µg/L	1.9E-03	1.9E-03	2.4E-03	2.9E-03	8.5E-03	1.3E-02	8.7E-03	2.6E-03	5.0E-04	3.2E-04
	PCB-Penta	µg/L	1.4E-03	1.4E-03	1.7E-03	2.1E-03	5.7E-03	8.3E-03	5.6E-03	1.6E-03	3.0E-04	1.5E-04
	PCB-Hexa	µg/L	5.8E-04	5.8E-04	6.8E-04	7.8E-04	1.9E-03	2.5E-03	1.7E-03	5.1E-04	9.8E-05	4.4E-05
	PCB-Hepta	µg/L	1.5E-04	1.5E-04	1.7E-04	1.8E-04	4.0E-04	5.0E-04	3.3E-04	1.1E-04	2.2E-05	9.3E-06
	PCB-Octa	µg/L	1.5E-05	1.5E-05	1.7E-05	1.8E-05	4.0E-05	4.8E-05	3.2E-05	1.0E-05	2.2E-06	9.3E-07
	PCB-Nona	µg/L	9.1E-07	9.1E-07	1.0E-06	1.1E-06	2.3E-06	2.8E-06	1.9E-06	6.1E-07	1.3E-07	5.5E-08
	PCB-Deca	µg/L	3.4E-08	3.4E-08	3.7E-08	4.0E-08	8.7E-08	1.0E-07	6.8E-08	2.3E-08	4.8E-09	2.0E-09
Sediment Properties	Porosity[1]	--	0.64	0.64	0.63	0.62	0.64	0.63	0.64	0.67	0.48	0.48
	Dry Bulk Density[1]	g/cm^3	0.93	0.93	0.96	0.99	0.94	0.96	0.92	0.85	1.34	1.36
	f_{OC}	%	1.68	1.68	1.68	1.67	1.69	1.73	2.07	1.77	0.74	0.97

Notes:
PCB congener concentrations were calculated from the measured Aroclor PCB concentrations in sediment based on the composition of an Aroclor. See Section 2.1 for further detail.

1. Porosity and dry bulk density were estimated using measured total solids.

--: not applicable
µg/L: microgram per liter
cm: centimeter
f_{OC}: fraction organic carbon
g/cm^3: gram per cubic centimeter
PCB: polychlorinated biphenyl

Table L.2.6
Buried Contamination Modeling Input Parameter Values for Core Location LDW23-SC1156

Group	Analyte	Unit	0 to 82 cm	82 to 142 cm	142 to 202 cm
PCBs	PCB-Mono	µg/L	4.6E-06	1.4E-05	1.8E-05
	PCB-Di	µg/L	6.6E-05	1.9E-04	2.9E-04
	PCB-Tri	µg/L	3.8E-04	1.1E-03	1.8E-03
	PCB-Tetra	µg/L	6.3E-04	1.9E-03	2.8E-03
	PCB-Penta	µg/L	4.7E-04	1.4E-03	1.7E-03
	PCB-Hexa	µg/L	2.0E-04	6.1E-04	6.0E-04
	PCB-Hepta	µg/L	5.5E-05	1.6E-04	1.4E-04
	PCB-Octa	µg/L	5.7E-06	1.7E-05	1.4E-05
	PCB-Nona	µg/L	3.4E-07	1.0E-06	8.1E-07
	PCB-Deca	µg/L	1.3E-08	3.7E-08	3.0E-08
Sediment Properties	Porosity[1]	--	0.63	0.63	0.66
	Dry Bulk Density[1]	g/cm^3	0.96	0.96	0.87
	f_{OC}	%	2.28	1.52	1.79

Notes:
PCB congener concentrations were calculated from the measured Aroclor PCB concentrations in sediment based on the composition of an Aroclor. See Section 2.1 for further detail.

1. Porosity and dry bulk density were estimated using measured total solids.

--: not applicable
µg/L: microgram per liter
cm: centimeter
f_{OC}: fraction organic carbon
g/cm^3: gram per cubic centimeter
PCB: polychlorinated biphenyl

Table L.2.7
Buried Contamination Modeling Input Parameter Values for Core Location LDW24-IT1426

Group	Analyte	Unit	0 to 45 cm	45 to 75 cm	75 to 105 cm	105 to 135 cm	135 to 165 cm	165 to 195 cm	195 to 225 cm
PCBs	PCB-Mono	µg/L	3.3E-05	1.4E-05	6.1E-06	6.4E-06	3.6E-06	1.7E-05	1.4E-06
	PCB-Di	µg/L	4.8E-04	1.8E-04	6.7E-05	8.5E-05	3.2E-05	1.8E-04	6.3E-06
	PCB-Tri	µg/L	2.8E-03	1.0E-03	3.5E-04	4.8E-04	1.4E-04	8.9E-04	1.1E-05
	PCB-Tetra	µg/L	4.8E-03	1.7E-03	6.1E-04	8.3E-04	2.7E-04	1.6E-03	3.3E-05
	PCB-Penta	µg/L	3.7E-03	1.4E-03	5.7E-04	6.8E-04	3.1E-04	1.6E-03	9.5E-05
	PCB-Hexa	µg/L	1.4E-03	7.1E-04	3.7E-04	3.2E-04	2.5E-04	1.1E-03	1.2E-04
	PCB-Hepta	µg/L	3.5E-04	2.1E-04	1.2E-04	8.9E-05	8.8E-05	3.5E-04	4.6E-05
	PCB-Octa	µg/L	3.6E-05	2.2E-05	1.3E-05	9.3E-06	9.5E-06	3.8E-05	5.0E-06
	PCB-Nona	µg/L	2.1E-06	1.3E-06	7.6E-07	5.5E-07	5.6E-07	2.3E-06	3.0E-07
	PCB-Deca	µg/L	7.8E-08	4.9E-08	2.8E-08	2.0E-08	2.1E-08	8.4E-08	1.1E-08
Sediment Properties	Porosity[1]	--	0.48	0.68	0.69	0.64	0.66	0.66	0.66
	Dry Bulk Density[1]	g/cm^3	1.36	0.84	0.82	0.93	0.89	0.89	0.89
	f_{OC}	%	0.37	2.43	3.17	3.04	3.57	2.50	3.23

Notes:
PCB congener concentrations were calculated from the measured Aroclor PCB concentrations in sediment based on the composition of an Aroclor. See Section 2.1 for further detail.

1. Porosity and dry bulk density were estimated using measured total solids.

--: not applicable
µg/L: microgram per liter
cm: centimeter
f_{OC}: fraction organic carbon
g/cm^3: gram per cubic centimeter
PCB: polychlorinated biphenyl

Table L.2.8
Buried Contamination Modeling Input Parameter Values for Core Location LDW-SC37

Group	Analyte	Unit	0 to 31 cm	31 to 61 cm	61 to 122 cm	122 to 162 cm	162 to 210 cm
Metal	Copper	µg/L	7.5E+01	1.0E+02	9.3E+02	4.7E+02	6.7E+00
	Lead	µg/L	3.0E+00	6.2E+00	8.8E+01	4.4E+01	4.0E-01
	Zinc	µg/L	3.1E+01	3.9E+01	3.7E+02	1.9E+02	6.2E+00
PAHs	Benzo(a)anthracene	µg/L	1.3E-01	3.1E-01	5.3E-01	4.3E-01	1.9E-02
	Benzo(a)pyrene	µg/L	8.8E-02	2.0E-01	1.8E-01	1.4E-01	6.0E-03
	Benzo(g,h,i)perylene	µg/L	9.4E-03	1.5E-02	1.5E-02	1.2E-02	2.4E-03
	Chrysene	µg/L	1.7E-01	4.4E-01	5.4E-01	4.4E-01	1.8E-02
	Dibenzo(a,h)anthracene	µg/L	1.9E-03	3.4E-03	3.0E-03	2.6E-03	6.5E-04
	Fluoranthene	µg/L	7.1E-01	1.7E+00	5.8E+00	4.7E+00	1.7E-01
	Indeno(1,2,3-cd)pyrene	µg/L	8.2E-03	1.4E-02	1.3E-02	1.1E-02	1.5E-03
	Phenanthrene	µg/L	5.0E-01	1.7E+00	1.1E+01	8.7E+00	2.7E-01
	Pyrene	µg/L	1.9E+00	5.0E+00	5.8E+00	4.7E+00	3.5E-01
	Total benzofluoranthenes	µg/L	1.5E-01	2.5E-01	2.7E-01	2.2E-01	4.1E-03
SVOCs	1,2,4-Trichlorobenzene	µg/L	1.5E-02	1.8E-02	2.4E-01	2.0E-01	7.0E-02
	1,2-Dichlorobenzene	µg/L	8.0E-02	1.5E-01	2.9E+00	2.3E+00	2.6E-01
Sediment Properties	Porosity[1]	--	0.69	0.64	0.64	0.48	0.41
	Dry Bulk Density[1]	g/cm^3	0.84	0.93	0.97	1.36	1.55
	f_{OC}	%	2.25	2.67	2.24	1.39	0.54

Notes:

1. Porosity and dry bulk density were estimated using measured total solids.

--: not applicable
µg/L: microgram per liter
cm: centimeter
f_{OC}: fraction organic carbon
g/cm^3: gram per cubic centimeter
PAH: polycyclic aromatic hydrocarbon
SVOC: semivolatile organic compound

Table L.2.9
Buried Contamination Modeling Input Parameter Values for Core Location SC-01

Group	Analyte	Unit	0 to 30 cm	30 to 61 cm	61 to 91 cm	91 to 122 cm	122 to 153 cm
PCBs	PCB-Mono	µg/L	0.0E+00	1.2E-04	2.7E-04	1.8E-04	5.9E-04
	PCB-Di	µg/L	0.0E+00	1.4E-03	3.2E-03	2.1E-03	7.0E-03
	PCB-Tri	µg/L	0.0E+00	1.7E-03	3.9E-03	2.6E-03	8.5E-03
	PCB-Tetra	µg/L	0.0E+00	1.3E-03	2.6E-03	1.7E-03	5.8E-03
	PCB-Penta	µg/L	0.0E+00	1.5E-03	2.4E-03	1.4E-03	5.2E-03
	PCB-Hexa	µg/L	0.0E+00	9.6E-04	1.1E-03	5.9E-04	1.9E-03
	PCB-Hepta	µg/L	0.0E+00	3.0E-04	2.9E-04	1.4E-04	4.0E-04
	PCB-Octa	µg/L	0.0E+00	3.2E-05	2.9E-05	1.4E-05	4.0E-05
	PCB-Nona	µg/L	0.0E+00	1.9E-06	1.7E-06	8.3E-07	2.3E-06
	PCB-Deca	µg/L	0.0E+00	7.0E-08	6.4E-08	3.0E-08	8.4E-08
PAHs	Acenaphthene	µg/L	0.0E+00	6.9E-02	1.7E-01	3.9E-01	2.5E+00
	Fluoranthene	µg/L	0.0E+00	1.3E-01	2.0E-01	2.6E-01	2.7E+00
Phthalates	BBP	µg/L	0.0E+00	3.2E-02	1.6E-01	1.9E-02	5.9E-02
Sediment Properties	Porosity[1]	--	0.40	0.70	0.63	0.59	0.47
	Dry Bulk Density[1]	g/cm^3	1.56	0.78	0.97	1.06	1.38
	f_{OC}	%	0.10	2.15	1.54	4.69	1.01

Notes:
PCB congener concentrations were calculated from the measured Aroclor PCB concentrations in sediment based on the composition of an Aroclor. See Section 2.1 for further detail.

1. Porosity and dry bulk density were estimated using measured total solids.

--: not applicable
µg/L: microgram per liter
BBP: butyl benzyl phthalate
cm: centimeter
f_{OC}: fraction organic carbon
g/cm^3: gram per cubic centimeter
PAH: polycyclic aromatic hydrocarbon
PCB: polychlorinated biphenyl

Table L.2.10
Buried Contamination Modeling Input Parameter Values for Core Location SC-02

Group	Analyte	Unit	0 to 30 cm	30 to 61 cm	61 to 91 cm	91 to 122 cm	122 to 153 cm
PCBs	PCB-Mono	µg/L	0.0E+00	1.6E-04	1.6E-04	7.3E-05	1.3E-04
	PCB-Di	µg/L	0.0E+00	1.9E-03	1.9E-03	8.6E-04	1.5E-03
	PCB-Tri	µg/L	0.0E+00	2.3E-03	2.3E-03	1.0E-03	1.8E-03
	PCB-Tetra	µg/L	0.0E+00	1.7E-03	1.8E-03	8.0E-04	1.2E-03
	PCB-Penta	µg/L	0.0E+00	1.6E-03	1.8E-03	8.2E-04	1.1E-03
	PCB-Hexa	µg/L	0.0E+00	7.5E-04	8.0E-04	3.7E-04	4.9E-04
	PCB-Hepta	µg/L	0.0E+00	2.0E-04	2.0E-04	9.6E-05	1.3E-04
	PCB-Octa	µg/L	0.0E+00	2.0E-05	2.0E-05	9.8E-06	1.3E-05
	PCB-Nona	µg/L	0.0E+00	1.2E-06	1.2E-06	5.8E-07	7.9E-07
	PCB-Deca	µg/L	0.0E+00	4.4E-08	4.3E-08	2.1E-08	2.9E-08
Phthalates	BBP	µg/L	0.0E+00	3.4E-02	9.0E-02	1.8E-02	3.3E-02
Sediment Properties	Porosity[1]	--	0.40	0.70	0.62	0.63	0.64
	Dry Bulk Density[1]	g/cm^3	1.56	0.78	0.98	0.95	0.95
	f_{OC}	%	0.10	2.44	1.94	1.60	2.19

Notes:
PCB congener concentrations were calculated from the measured Aroclor PCB concentrations in sediment based on the composition of an Aroclor. See Section 2.1 for further detail.

1. Porosity and dry bulk density were estimated using measured total solids.

--: not applicable
µg/L: microgram per liter
BBP: butyl benzyl phthalate
cm: centimeter
f_{OC}: fraction organic carbon
g/cm^3: gram per cubic centimeter
PCB: polychlorinated biphenyl

Table L.2.11
Buried Contamination Modeling Input Parameter Values for Core Location SC-032

Group	Analyte	Unit	0 to 30 cm	30 to 61 cm	61 to 91 cm	91 to 122 cm	122 to 145 cm
PCBs	PCB-Mono	µg/L	0.0E+00	2.3E-04	3.4E-04	2.3E-03	--
	PCB-Di	µg/L	0.0E+00	2.7E-03	4.1E-03	2.7E-02	--
	PCB-Tri	µg/L	0.0E+00	3.2E-03	4.9E-03	3.3E-02	--
	PCB-Tetra	µg/L	0.0E+00	2.1E-03	3.1E-03	2.3E-02	--
	PCB-Penta	µg/L	0.0E+00	1.8E-03	2.6E-03	2.0E-02	--
	PCB-Hexa	µg/L	0.0E+00	8.1E-04	1.1E-03	7.7E-03	--
	PCB-Hepta	µg/L	0.0E+00	2.0E-04	2.6E-04	1.7E-03	--
	PCB-Octa	µg/L	0.0E+00	2.1E-05	2.6E-05	1.7E-04	--
	PCB-Nona	µg/L	0.0E+00	1.2E-06	1.5E-06	9.8E-06	--
	PCB-Deca	µg/L	0.0E+00	4.5E-08	5.6E-08	3.6E-07	--
PAHs	Benzo(a)anthracene	µg/L	0.0E+00	2.1E-02	3.9E-01	3.1E-01	1.3E-02
	Benzo(a)pyrene	µg/L	0.0E+00	1.1E-02	7.6E-02	4.0E-02	2.7E-03
	Benzo(g,h,i)perylene	µg/L	0.0E+00	1.7E-03	5.9E-03	3.6E-03	9.4E-04
	Chrysene	µg/L	0.0E+00	2.4E-02	3.9E-01	2.9E-01	9.4E-03
	Dibenzo(a,h)anthracene	µg/L	0.0E+00	4.6E-04	2.1E-03	9.3E-04	4.9E-04
	Fluoranthene	µg/L	0.0E+00	1.8E-01	1.2E+00	1.4E+00	5.7E-02
	Indeno(1,2,3-cd)pyrene	µg/L	0.0E+00	1.6E-03	6.6E-03	3.0E-03	4.8E-04
	Pyrene	µg/L	0.0E+00	6.5E-01	1.0E+01	5.3E+00	4.3E-01
	Total benzofluoranthenes	µg/L	0.0E+00	1.6E-02	1.2E-01	6.3E-02	3.1E-03
Sediment Properties	Porosity[1]	--	0.40	0.63	0.53	0.20	0.27
	Dry Bulk Density[1]	g/cm^3	1.56	0.96	1.22	2.07	1.91
	f_{OC}	%	0.10	1.88	1.30	0.33	0.08

Notes:
PCB congener concentrations were calculated from the measured Aroclor PCB concentrations in sediment based on the composition of an Aroclor. See Section 2.1 for further detail.
The evaluation only simulated the top 122 cm of PCBs because PCBs were not detected beyond 122 cm.

1. Porosity and dry bulk density were estimated using measured total solids.

--: not applicable
µg/L: microgram per liter
cm: centimeter
f_{OC}: fraction organic carbon
g/cm^3: gram per cubic centimeter
PAH: polycyclic aromatic hydrocarbon
PCB: polychlorinated biphenyl

Table L.2.12
Buried Contamination Modeling Input Parameter Values for Core Location LDW24-SC1323

Group	Analyte	Unit	0 to 85 cm	85 to 115 cm	115 to 145 cm	145 to 175 cm	175 to 205 cm	205 to 235 cm	235 to 265 cm	265 to 295 cm	295 to 325 cm
PCBs	PCB-Mono	µg/L	1.1E-05	2.0E-05	1.8E-05	1.7E-05	1.7E-05	4.1E-05	6.0E-05	7.4E-05	8.3E-05
	PCB-Di	µg/L	1.7E-04	2.8E-04	2.5E-04	2.5E-04	2.5E-04	7.0E-04	1.1E-03	1.2E-03	1.4E-03
	PCB-Tri	µg/L	9.9E-04	1.6E-03	1.4E-03	1.4E-03	1.4E-03	4.5E-03	6.9E-03	7.8E-03	8.4E-03
	PCB-Tetra	µg/L	1.7E-03	2.8E-03	2.5E-03	2.5E-03	2.6E-03	6.5E-03	9.5E-03	1.2E-02	1.4E-02
	PCB-Penta	µg/L	1.2E-03	2.3E-03	2.0E-03	2.1E-03	2.1E-03	3.3E-03	4.2E-03	7.3E-03	9.4E-03
	PCB-Hexa	µg/L	4.6E-04	9.1E-04	8.2E-04	8.2E-04	8.1E-04	1.1E-03	1.3E-03	2.2E-03	2.9E-03
	PCB-Hepta	µg/L	1.1E-04	2.2E-04	2.1E-04	2.0E-04	1.9E-04	2.4E-04	2.9E-04	4.4E-04	5.5E-04
	PCB-Octa	µg/L	1.1E-05	2.3E-05	2.1E-05	2.0E-05	1.9E-05	2.5E-05	2.9E-05	4.3E-05	5.3E-05
	PCB-Nona	µg/L	6.3E-07	1.4E-06	1.3E-06	1.2E-06	1.1E-06	1.5E-06	1.7E-06	2.5E-06	3.1E-06
	PCB-Deca	µg/L	2.3E-08	5.0E-08	4.6E-08	4.4E-08	4.1E-08	5.5E-08	6.5E-08	9.4E-08	1.1E-07
Sediment Properties	Porosity[1]	--	0.70	0.67	0.65	0.65	0.66	0.63	0.61	0.63	0.64
	Dry Bulk Density[1]	g/cm^3	0.79	0.85	0.92	0.91	0.89	0.95	1.02	0.97	0.92
	f_{OC}	%	2.07	1.80	1.78	1.50	1.21	1.37	1.52	1.85	2.17

Notes:
PCB congener concentrations were calculated from the measured Aroclor PCB concentrations in sediment based on the composition of an Aroclor. See Section 2.1 for further detail.

1. Porosity and dry bulk density were estimated using measured total solids.

--: not applicable
µg/L: microgram per liter
cm: centimeter
f_{OC}: fraction organic carbon
g/cm^3: grams per cubic centimeter
PCB: polychlorinated biphenyl