Lower Duwamish Waterway Group

Port of Seattle / City of Seattle / King County / The Boeing Company

Lower Duwamish Waterway Remedial Investigation

APPENDICES C, D, E, AND F

FINAL

For submittal to

The U.S. Environmental Protection Agency
Region 10
Seattle, WA

The Washington State Department of Ecology
Northwest Regional Office
Bellevue, WA

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Prepared by: Windward environmental LLC

200 West Mercer Street, Suite 401 ♦ Seattle, Washington ♦ 98119

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Appendix C: Data Management Procedures Related To GIS Maps

C.1. Sources of GIS Information

The maps presented in this document represent a compilation of data from several different sources. The sources, spatial analysis, and data reduction procedures used to display the chemistry data on these maps are described in this section.

C.1.1 Shoreline

The shoreline used in the maps is based on the shoreline coverage used by EPA in the Site Inspection (Weston 1999). The GIS data were obtained from http://www.epa.gov/r10earth/offices/oec/duwamish/.

Several slight modifications were made in the shoreline coverage to incorporate sediment sampling locations that would otherwise plot on land. The following table lists the LocationNum for these locations (see RI Maps 2-5a to 2-5k). Most of these locations were sampled as part of either the NOAA Site Characterization or the Plant 2 RFI.

LocationNum	LocationName	Event	LocationNum	LocationName	Event
57	EIT045	NOAA SiteChar	383	SD-04117	Plant 2 RFI
74	EIT064	NOAA SiteChar	384	SD-04121	Plant 2 RFI
76	EIT067	NOAA SiteChar	385	SD-04122	Plant 2 RFI
77	EIT068	NOAA SiteChar	389	SD-04404	Plant 2 RFI
91	EIT086	NOAA SiteChar	390	SD-04405	Plant 2 RFI
94	EIT089	NOAA SiteChar	395	SD-04901	Plant 2 RFI
102	EST102	NOAA SiteChar	396	SD-04902	Plant 2 RFI
244	WIT261	NOAA SiteChar	397	SD-04903	Plant 2 RFI
248	WIT265	NOAA SiteChar	398	SD-04904	Plant 2 RFI
258	WIT276	NOAA SiteChar	399	SD-04905	Plant 2 RFI
262	WIT281	NOAA SiteChar	400	SD-04906	Plant 2 RFI
273	WIT294	NOAA SiteChar	401	SD-04907	Plant 2 RFI
274	WIT295	NOAA SiteChar	402	SD-04908	Plant 2 RFI
277	WIT298	NOAA SiteChar	403	SD-04909	Plant 2 RFI
278	WIT299	NOAA SiteChar	404	SD-04910	Plant 2 RFI
364	SB-04117	Plant 2 RFI	405	SD-04911	Plant 2 RFI
365	SB-04118	Plant 2 RFI	406	SD-04912	Plant 2 RFI
366	SB-04119	Plant 2 RFI	407	SD-04913	Plant 2 RFI
369	SD-04101	Plant 2 RFI	408	SD-04914	Plant 2 RFI
370	SD-04102	Plant 2 RFI	409	SD-04915	Plant 2 RFI
371	SD-04103	Plant 2 RFI	410	SD-04917	Plant 2 RFI
372	SD-04104	Plant 2 RFI	411	SD-04918	Plant 2 RFI
373	SD-04105	Plant 2 RFI	414	SD-04922	Plant 2 RFI
374	SD-04107	Plant 2 RFI	522	SS-SWY01	Plant 2 RFI

LocationNum	LocationName	Event	LocationNum	LocationName	Event
375	SD-04108	Plant 2 RFI	523	SS-SWY02	Plant 2 RFI
376	SD-04109	Plant 2 RFI	524	SS-SWY03	Plant 2 RFI
377	SD-04110	Plant 2 RFI	525	SS-SWY04	Plant 2 RFI
378	SD-04111	Plant 2 RFI	526	SS-SWY05	Plant 2 RFI
379	SD-04112	Plant 2 RFI	527	SS-SWY06	Plant 2 RFI
380	SD-04113	Plant 2 RFI	900	R23	Boeing SiteChar
381	SD-04115	Plant 2 RFI	1143	SD-17	Seaboard-Ph2
382	SD-04116	Plant 2 RFI	1144	SD-18	Seaboard-Ph2

The EPA shoreline coverage was modified in the GIS by extending the shoreward extent of the shoreline in a smooth line so that all sampling points would be included within the new boundary. This manipulation was necessary so that Thiessen polygons, which were bounded on the upland side by the shoreline, would include all sampling points. Map C-1, included in the RI map folio, shows the original and adjusted shorelines and the sampling locations that were outside the original shoreline.

C.1.2 Navigation channel

The GIS data for the LDW navigation channel were obtained from the Seattle office of the Army Corps of Engineers.

C.1.3 Tax parcels

GIS data on tax parcels were used to identify ownership of property adjacent to the LDW. The GIS data were obtained from the City of Seattle GIS department on April 17, 2002. Gaps between adjacent tax parcels generally indicate road right-of-ways.

C.1.4 Dredging prisms

The dredge prisms for dredging events that have occurred within the last 10 years were obtained electronically from the Army Corps of Engineers (ACOE), with some exceptions. The dredge prism for the 1999 ACOE maintenance dredging was approximated from the dredge plan maps in the dredged materials characterization reports. The location of the 1999 ACOE maintenance dredging was transferred to the GIS from an AutoCAD file obtained from the ACOE. Dredge prisms for several small dredging events (Duwamish Yacht Club, Lone Star 1992, and Lone Star-Hardie Gypsum), were estimated based on the areal extent of subsurface sediment sampling associated with dredged material characterization sampling.

Dredge prisms are shown RI Maps 2-4a and 2-4b, which show surface sediment sampling locations by event, and RI Map 2-5, which shows subsurface sediment sampling locations by event.

Surface and subsurface sediment data collected from locations that were subsequently dredged between 1990 and the present were excluded from analyses conducted in the RI and RAs with the exception of the segment of the ACOE maintenance dredging

from channel centerline stations 254 (RM 4.25) to 275.56 (RM 4.65) that is dredged every one to two years. Sediment data from this reach, though it has been dredged since sampling, should adequately characterize the frequently dredged sediments. The samples that were excluded from analyses are listed in Appendix Tables D-1 (surface sediment) and D-2 (subsurface sediment). The chemistry data associated with these excluded samples is included in the Phase 1 RI data CD.

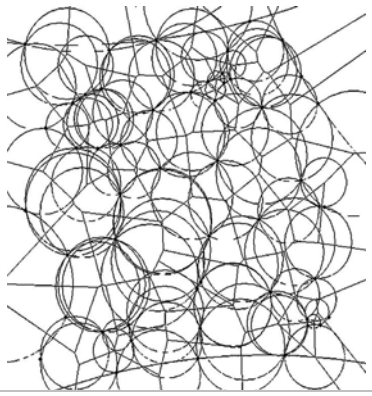
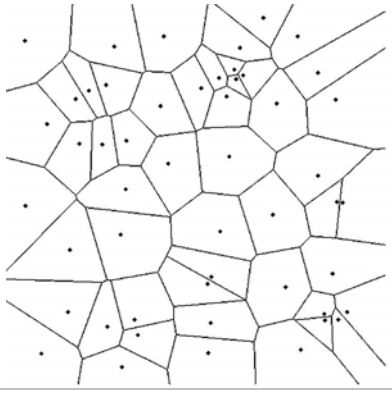
C.2 SPATIAL ANALYSIS

Spatial analysis was conducted for point themes related to sediment sampling locations (Section C.2.1) and for bathymetric contours (Section C.2.2).

C.2.1 Sediment sampling locations

Spatial analysis with respect to the GIS in this project refers to the methods used to interpolate between sampling points, where concentrations are known, and the empty space between sampling points, where concentrations are not known, but can be inferred. There are many different methods for conducting such analysis. Rather than describe all available methods, this section summarizes the use of Thiessen polygons for this purpose in the Phase 1 RI. A clearinghouse of information on applications, implementation, and theory for Thiessen polygons (also called Voronoi diagrams) can be found at http://www.voronoi.com/Indexframes.htm.

Use of Thiessen polygons is a relatively simple method used by scientists to account for spatial variability in sampling intensity. The Thiessen polygon associates each point in a plane with the closest sampling location for which a measurement is available (Burmaster and Thompson 1997). In effect, this algorithm assumes that the concentration at any point where measurements have not been made is the same as the concentration in the sample closest to that point.

For example, assume that sampling points exist as shown to the right. The density of the points is uneven, so simply taking averages from all sampling points would yield a result that does not accurately reflect the concentration distribution over the entire area.	
Thiessen polygons are defined by circumcircles. Each circumcircle passes through three data points, as shown at right. No sampling points are located within a circumcircle and no other point is closer to the center of the circle than the points that make up the circle.	
Polygons are defined by connecting the centers of each circumcircle containing the point about which a polygon is being constructed. The vertices of the polygon are the centers of each circumcircle. Each side of a polygon bisects that line segment joining each pair of points. Concentrations associated with a particular point within the diagram can now be associated with the entire polygon. This allows area-weighted concentrations to be calculated.	

There are several advantages and disadvantages to this method compared to more sophisticated methods of spatial analysis. The primary advantage is the relative simplicity of the method. The method does not require any assumptions regarding weighting of adjacent sampling points or the number of adjacent sampling points to incorporate in the interpolation. Consequently, the technical basis for the method can be easily agreed on by multiple parties. The method is computationally simple in the GIS and can be employed quickly in ArcMap® or ArcView® without additional software extensions. The method is best-suited for viewing large areas like the LDW where sampling density is relatively high. In such cases, reasonably accurate calculations of spatially-weighted average concentrations are possible.

The primary disadvantage of the method is that only the nearest sampling point is used to assign concentrations to a polygon. Concentration data from other adjacent

sampling points is discarded. Consequently, there can be large discontinuities in concentrations between adjacent polygons. Thiessen polygons are not well-suited for defining contours or boundaries between different concentration ranges, particularly for small areas with only a few sampling points. Since boundaries for early action sites are not being defined in this memorandum, this disadvantage of the Thiessen polygon method is not applicable. An additional disadvantage of this method is that polygon areas associated with sampling points near boundaries (e.g., shoreline) are distorted, which potentially affects the spatially-weighted averages.

For a single chemical, Thiessen polygons are defined by the locations where that chemical was analyzed. Many maps included in the RI portray multiple chemicals simultaneously. In these cases, Thiessen polygons are defined by locations where any of the chemicals being mapped were analyzed. This technique underrepresents the area associated with chemicals that were measured less frequently since the polygon size is based on chemicals that were measured most frequently. Additional data may be collected during the Phase 2 RI for chemicals measured less frequently. Other spatial data analysis techniques will be considered for the Phase 2 RI.

C.2.2 Bathymetric data

RI section 4.4.2 includes a summary of detailed analyses of recent and historical bathymetric data. The following steps were taken to generate the isopach maps and cross-sections used in that section. Isopach maps were generated using the following process in AutoCAD® Land Development Desktop:

1. The electronic point data files were imported in to a geo-referenced base map.
2. A surface (Triangular Irregular Network [TIN]) was created from the digitized points from each survey.
3. From each surface, a set of new points was created (i.e., a common set of x-y coordinates were created from each of the surfaces). The new points were created from a grid that approximated the location of the original survey transects to minimize potential interpolation errors in the TIN.
4. For each isopach, the difference between pairs of surfaces (surveys) of interest at each x-y coordinate was determined.
5. The difference at each x-y coordinate was contoured to produce the isopach map. A net increase in apparent elevation between years was contoured as a positive value. A net decrease in apparent elevation was contoured as a negative value.

Survey methods used by the ACOE during their LDW bathymetric surveys have changed over time. Early surveys used established transect lines and a tagline for positioning along each transect. Initially, hand soundings were recorded at 20-ft intervals along each transect. Recent technological improvements in bathymetric survey methods include the use of an electronic depth sounder with strip recorder and a switch to electronic positioning systems in the 1980s. Integrated GPS survey systems and electronic depth sounders were developed and used in surveys conducted in the 1990s.

Positioning accuracy along each bathymetric survey transect is unknown. Each traverse is open-ended with no method of "closing-out" or determining accumulated errors as in terrestrial surveying. Depth measurements may also have varying accuracies with unknown measurement (associated with the method; i.e., hand sounding versus acoustic-echo ranging) and reference correction (adjustment for water elevation) errors. These errors are independent of each other and include a combination of random errors and potential systematic biases. Potential errors resulting from positioning inaccuracies (i.e., x-y coordinates) will have the most significant effect on the surfaces generated in areas with steeper slopes or at the beginning or end of each transect. Surface elevations and contours generated in these areas should be viewed with caution.

C.3 DATA REDUCTION PROCEDURES

C.3.1 Detection limits

The term "detection limit" is commonly used in environmental science, but there is no single definition that is universally recognized. In the context of the historical chemistry data used in the Phase 1 RI, the sample detection limit usually refers to the concentration below which the laboratory analyst, or in some cases the data validator, has concluded that the compound in question is not present in the sample. This non-technical definition is generally applicable to the each laboratory that has analyzed LDW samples included in the Phase 1 RI, but there are laboratory-specific differences in how data are reported and assigned the "U" qualifier that typically represents a non-detect.

Table C-1 gives the chemistry laboratories associated with each of the sampling events included in the Phase 1 RI. Table C-2 gives a definition of the reported "detection limit" as given by each laboratory, and notes on how this limit was represented in the LDWG database (if necessary).

Table C-1. Chemistry laboratories for each historical LDW sampling event

EVENT CODE	LABORATORY NAME
ACOE96	AmTest, Inc
Boeing SiteChar	Analytical Resources, Inc.
Duw/Diag-1	King County Environmental Laboratory
Duw/Diag-1.5	King County Environmental Laboratory
Duw/Diag-2	King County Environmental Laboratory
DuwamYachtClub	Columbia Analytical
EPA SI	Analytical Resources, Inc.
EVS 95	Battelle Pacific Northwest Division
EVS 95	Frontier Geosciences
Harbor Island RI	Analytical Resources, Inc.
Hardie Gypsum-1	AmTest, Inc

EVENT CODE	LABORATORY NAME
Hardie Gypsum-2	AmTest, Inc
Hurlen-Boyer	Columbia Analytical
KC WQA	Analytical Resources, Inc.
KC WQA	Frontier Geosciences
KC WQA	King County Environmental Laboratory
Lone Star 92	AmTest, Inc
Lone Star-Hardie Gypsum	AmTest, Inc
Lone Star-Hardie Gypsum	Analytical Resources, Inc.
NOAA SiteChar	NOAA Laboratory (Seattle)
NOAA-salmon	NOAA Laboratory (Seattle)
NOAA-salmon2	NOAA Laboratory (Seattle)
Norfolk-cleanup1	King County Environmental Laboratory
Norfolk-cleanup2	King County Environmental Laboratory
Norfolk-cleanup3	King County Environmental Laboratory
Norfolk-monit1	King County Environmental Laboratory
Norfolk-monit2a	King County Environmental Laboratory
Norfolk-monit2b	King County Environmental Laboratory
Norfolk-monit3	King County Environmental Laboratory
Norfolk-monit4	King County Environmental Laboratory
Plant 2 RFI-1	Analytical Resources, Inc.
Plant 2 RFI-2a	Analytical Resources, Inc.
Plant 2 RFI-2b	Analytical Resources, Inc.
PSAMP/NOAA98	Manchester Environmental Laboratory
PSAMP-fish	King County Environmental Laboratory
Rhone-Poulenc RFI-1	Analytical Resources, Inc.
Rhone-Poulenc RFI-2	Analytical Resources, Inc.
Seaboard-Ph2	Analytical Resources, Inc.
Slip4-Crowley	Analytical Resources, Inc.
Slip4-Crowley	Columbia Analytical
WSOU	Axys Analytical Services LTD
WSOU	Columbia Analytical

Table C-2. Sample detection limit definitions by laboratory

LABORATORY	SAMPLE DETECTION LIMIT DEFINITION
AmTest, Inc	The detection limit was based on three times the standard deviation of seven replicates of a low-level standard, the sample size, and the percent solids
Analytical Resources, Inc.	The reporting limit (RL) for GC/ECD, GC/PID, GC/FID (organic) analyses is based on the low point of the calibration range of the instrument. The RL for metals is an arbitrary value set above the method detection limit (MDL) and instrument detection limit (IDL) and based on the expert opinion of the analyst, supervisor, and manager. A detection limit standard is run daily at two times the RL and must be within the RL for a detection limit to be considered valid. The RL for GC/MS VOA and SVOA is above the MDL, but may be lower than the

LABORATORY	SAMPLE DETECTION LIMIT DEFINITION
	low limit of the curve. Concentrations reported as detects, but below the low limit of the calibration curve are flagged by the laboratory. All sample detection limits are adjusted for sample weight and percent solids.
Axys Analytical Services LTD	Sample-specific detection limits were calculated using the same equation used to calculate concentration, which includes sample weight, but with the minimum detectable peak area used for the Area response. The minimum detectable peak area was calculated as three times the maximum noise in the GC/MS channel of interest (height of noise x area/height ratio of a typical peak x 3).
Battelle Pacific Northwest Division	The sample detection limit was based on three times the standard deviation of seven replicates of a low blank spike and the sample weight.
Columbia Analytical	Inorganic data are reported to the MDL, a statistically-derived lower limit of detection. Organic data are reported to the lower limit of quantitation, which takes into account day-to-day fluctuations in instrument sensitivity. All sample detection limits are adjusted for sample weight and percent solids.
Frontier Geosciences	The estimated method detection limit was calculated as three times the standard deviation of three preparation blanks. Sample detection limits factored in sample weight as well.
King County Environmental Laboratory	The MDL is the lowest concentration that can be detected at the instrument. The reporting detection limit (RDL) is a multiple of the MDL, usually 5X the MDL for metals and 2X the MDL for organics. For the Phase 1 RI, results reported below the MDL were flagged with U, results between the MDL and RDL were considered detects, but flagged with a J (estimated value), results above the RDL were also considered detects, and usually not qualified at all. Sample detection limits incorporated sample weight and percent solids (for sediment).
Manchester Environmental Laboratory	The reporting limit was the lowest standard concentration in the initial calibration curve adjusted for the amount of sample analyzed and the percent solids in the sample.
NOAA Laboratory (Seattle)	The reporting limit was calculated using the following equation: [(amount of surrogate standard added to sample x the Minimum Area under the curve of the lowest standard) / (surrogate standard area for the sample x Response Factor) / sample size]

Data from typical environmental samples include many chemicals that were not detected above reporting limits. In these cases the "true" concentration is unknown. For calculations that include these non-detects, a concentration must be assumed. In this project, three different assumptions were made, depending on the objective of the analysis. The treatment of detection limits is noted on each map and in the documents where the calculation results are reported.

In general, the treatment of detection limits follows this pattern:

- Full detection limits are used as the most conservative representation of the non-detects. They are used most frequently in the nature and extent of contamination section of the RI, where maps show locations with detected concentrations separately from locations without detected concentrations.
- Half detection limits are often used in risk assessments as a reasonable approach to presenting concentrations that are somewhere between zero and the detection limit. Most calculations in the ERA and HHRA are done using half-detection limits.
- Zero detection limits may be used in conjunction with either of the above methods to provide additional information on the implications on non-detect

values. Maps in the nature and extent of contamination section of the RI include both full and zero detection limit treatments.

C.3.2 Laboratory replicates and field duplicates

Chemical concentrations obtained from the analysis of laboratory replicates (two or more analyses done on the same sample) and field duplicates (two separate samples collected at the same location from the same homogenate) can be more representative of the "true" concentration compared to the results of a single analysis. Results for replicates and duplicates were averaged for mapping purposes according to the following rules.

A hierarchical approach was used where results from laboratory replicates were averaged before results from field duplicates. This approach gives more weight to the field duplicates. For example, if one sample of a field duplicate pair was analyzed twice by the laboratory for QC purposes, then there would be 3 results for each parameter, two from the laboratory replicates and a third from the other half of the field duplicate pair. Rather than simply averaging all three results, which would give unwarranted weight to both laboratory replicates, the results from the two laboratory replicates are averaged first, then the result of this calculation is averaged with the result from the other half of the field duplicate pair.

Averaging rules were dependent on whether the result was a "detect" or "non-detect." If all concentrations were detects for a given parameter, the values were simply averaged arithmetically. If all concentrations were undetected for a given parameter, the minimum detection limit was reported as the "average", since this minimum is the primary constraint on the "true" concentration. If the concentrations are a mixture of detects and non-detects, one-half the detection limit is averaged with the detected concentrations and the result is considered a detect. The following table illustrates the three cases with example data.

CHEMICAL	CONCENTRATION 1	CONCENTRATION 2	AVERAGE CONCENTRATION
Lead	50	40	45
Hexachlorobenzene	10 U	20 U	10 U
Mercury	0.50	0.60 U	0.40

U represents a non-detect concentration

C.3.3 Averaging by location

There are some cases in the Duwamish sediment chemistry database where multiple samples were collected at different times at the same location. For GIS purposes, these data must be averaged as well since each sampling point must be represented by a single concentration for a given parameter. Averaging rules by location are identical to averaging rules for replicates/duplicates discussed above. These rules may be applied differently in Phase 2, depending on the objective of the specific analysis.

One exception to this averaging policy was made for samples collected during recent post-remediation monitoring at the Norfolk CSO site. During monitoring events of

April 2000 (event code Norfolk-monit3) and April 2001 (event code Norfolk-monit4), sediment samples were collected from both 0-2 and 0-10 cm depth horizons at the same locations. Because the samples collected from the 0-2 cm depths reflect a different sedimentation history than the samples collected at the 0-10 cm depth, it is not appropriate to average them. The samples collected from the 0-10 depth reflect a longer-term sedimentation history that is consistent with almost all the other samples in the surface sediment chemistry database. Consequently, eight 0-2 cm samples[1]collected synoptically with the 0-10 cm at four locations during these two monitoring events were excluded from risk assessment analyses and maps. The data associated with these samples are included on the project data CD.

C.4 REFERENCES

Burmaster DE, Thompson KM. 1997. Estimating exposure point concentrations for surface soils for use in deterministic and probabilistic risk assessments. Hum Ecolog Risk Assess 3(3):363-384.

Weston. 1999. Site inspection report. Lower Duwamish River. RK 2.5-11.5. Volume 1-Report and appendices. Prepared for US Environmental Protection Agency, Region 10, Seattle, WA. Roy F. Weston, Inc., Seattle, WA.

[1] From Norfolk-monit3, the excluded 0-2 cm samples were collected at NFK501 (L17647-1), NFK502 (L17647-3), NFK503 (L17647-5), and NFK504 (L17647-7). From Norfolk-monit4, the excluded 0-2 cm samples were collected at NFK501 (L20703-1), NFK502 (L20703-3), NFK503 (L20703-5), and NFK504 (L20703-7).

Appendix D: Summary Statistics for Sediment, Porewater, and Tissue Samples

Table D-1. Surface sediment samples excluded from Phase 1 RI and RAs because of remediation

EVENT	LOCATION ID	SAMPLE ID	SAMPLE DATE	REASON FOR EXCLUSION [a]
Boeing SiteChar	R86	SD0091	10.19.1997	Dredged: Norfolk
Boeing SiteChar	R87	SD0079	10.18.1997	Dredged: Norfolk
EPA SI	DR093	SD-DR093-0000	8.17.1998	Dredged: James Hardie
EPA SI	DR142	SD-DR142-0000	8.20.1998	Dredged: Boyer
EPA SI	DR143	SD-DR143-0000	8.31.1998	Dredged: Boyer
EPA SI	DR145	SD-DR145-0000	8.17.1998	Dredged: James Hardie
EPA SI	DR163	SD-DR163-0000	8.27.1998	Dredged: James Hardie
EPA SI	DR181	SD-DR181-0000	9.1.1998	Dredged: Crowley
EPA SI	DR191	SD-DR191-0000	8.13.1998	Dredged: Hurlen
EPA SI	DR192	SD-DR192-0000	8.13.1998	Dredged: Hurlen
EPA SI	DR194	SD-DR194-0000	8.20.1998	Dredged: Morton
EPA SI	DR195	SD-DR195-0000	8.20.1998	Dredged: Morton
EPA SI	DR205	SD-DR205-0000	8.27.1998	Dredged: South Park
EPA SI	DR219	SD-DR219-0000	9.14.1998	Dredged: ACOE maintenance
EPA SI	DR227	SD-DR227-0000	8.27.1998	Dredged: South Park
EPA SI	DR228	SD-DR228-0000	9.1.1998	Dredged: ACOE maintenance
EPA SI	DR229	SD-DR229-0000	8.27.1998	Dredged: ACOE maintenance
EPA SI	DR230	SD-DR230-0000	8.25.1998	Dredged: ACOE maintenance
EPA SI	DR234	SD-DR234-0000	8.19.1998	Dredged: ACOE maintenance
EPA SI	DR235	SD-DR235-0000	8.26.1998	Dredged: ACOE maintenance
EPA SI	DR255	SD-DR255-0000	9.15.1998	Dredged: Norfolk
EPA SI	DR256	SD-DR256-0000	9.15.1998	Dredged: Norfolk
EPA SI	DR282	SD-DR282-0000	8.25.1998	Dredged: ACOE maintenance
EPA SI	DR288	SD-DR288-0000	8.25.1998	Dredged: ACOE maintenance
NOAA SiteChar	CH0005	CH02-01	10.9.1997	Dredged: ACOE maintenance
NOAA SiteChar	CH0007	CH02-03	10.9.1997	Dredged: ACOE maintenance
NOAA SiteChar	CH0009	CH03-01	10.15.1997	Dredged: ACOE maintenance
NOAA SiteChar	CH0010	CH03-02	10.15.1997	Dredged: ACOE maintenance
NOAA SiteChar	CH0011	CH03-03	10.15.1997	Dredged: ACOE maintenance
NOAA SiteChar	CH0012	CH03-04	10.15.1997	Dredged: ACOE maintenance
NOAA SiteChar	CH0017	CH04-04	11.13.1997	Dredged: ACOE maintenance
NOAA SiteChar	EST170	EST12-06	9.30.1997	Dredged: Crowley
NOAA SiteChar	EST172	EST12-08	9.23.1997	Dredged: Crowley
NOAA SiteChar	EST173	EST12-09	9.22.1997	Dredged: Crowley
NOAA SiteChar	WST303	WST02-02	10.23.1997	Dredged: ACOE maintenance
NOAA SiteChar	WST311	WST05-01	11.13.1997	Dredged: ACOE maintenance
NOAA SiteChar	WST316	WST07-02	10.1.1997	Dredged: ACOE maintenance
NOAA SiteChar	WST317	WST07-03	10.15.1997	Dredged: ACOE maintenance

EVENT	LOCATION ID	SAMPLE ID	SAMPLE DATE	REASON FOR EXCLUSION [a]
NOAA SiteChar	WST318	WST08-01	10.2.1997	Dredged: ACOE maintenance
NOAA SiteChar	WST319	WST08-02	10.2.1997	Dredged: ACOE maintenance
NOAA SiteChar	WST320	WST08-03	10.2.1997	Dredged: ACOE maintenance
NOAA SiteChar	WST321	WST08-04	10.2.1997	Dredged: ACOE maintenance
NOAA SiteChar	WST322	WST09-01	10.21.1997	Dredged: South Park
NOAA SiteChar	WST341	WST13-03	10.21.1997	Dredged: Hurlen
NOAA SiteChar	WST344	WST14-02	10.10.1997	Dredged: Boyer
Norfolk-cleanup1	NFK001	L4321-1	8.18.1994	Dredged: Norfolk
Norfolk-cleanup1	NFK004	L4321-4	8.18.1994	Dredged: Norfolk
Norfolk-cleanup1	NFK007	L4321-7	8.22.1994	Dredged: Norfolk
Norfolk-cleanup1	NFK008	L4321-8	8.17.1994	Dredged: Norfolk
Norfolk-cleanup1	NFK009	L4321-25	8.31.1994	Dredged: Norfolk
Norfolk-cleanup1	NFK009	L4321-9	8.17.1994	Dredged: Norfolk
Norfolk-cleanup1	NFK012	L4321-13	8.18.1994	Dredged: Norfolk
Norfolk-cleanup1	NFK013	L4321-14	8.19.1994	Dredged: Norfolk
Norfolk-cleanup2	NFK201	L6725-1	8.23.1995	Dredged: Norfolk
Norfolk-cleanup2	NFK202	L6725-2	8.23.1995	Dredged: Norfolk
Norfolk-cleanup2	NFK203	L6725-3	8.23.1995	Dredged: Norfolk
Norfolk-cleanup2	NFK205	L6725-5	8.28.1995	Dredged: Norfolk
Norfolk-cleanup2	NFK206	L6725-6	8.28.1995	Dredged: Norfolk
Norfolk-cleanup3	NFK201	L7462-16	12.5.1995	Dredged: Norfolk
Norfolk-cleanup3	NFK312	L7462-12	12.5.1995	Dredged: Norfolk
Norfolk-cleanup3	NFK314	L7462-14	12.6.1995	Dredged: Norfolk
Norfolk-cleanup3	NFK315	L7462-15	12.5.1995	Dredged: Norfolk
Plant 2 RFI-2b	SD-DUW83	SD2B-DUW83-0000	4.3.1996	Dredged: ACOE maintenance

[a] Data are included in the database but are excluded from the risk assessments and RI chemical characterization sections because the data no longer reflect current conditions

Table D-2. Subsurface sediment samples excluded from Phase 1 RI and RAs because of remediation

EVENT	LOCATION ID	SAMPLE ID	SAMPLE DATE	REASON FOR EXCLUSION
ACOE96	6	S3	9.6.1996	Dredged: ACOE maintenance
DuwamYachtClub	C1	C1	3.4.1999	Dredged: Duwamish Yacht Club
DuwamYachtClub	C2	C2	3.4.1999	Dredged: Duwamish Yacht Club
DuwamYachtClub	C3	C3	3.4.1999	Dredged: Duwamish Yacht Club
DuwamYachtClub	C4	C4	3.5.1999	Dredged: Duwamish Yacht Club
DuwamYachtClub	C5	C5	3.5.1999	Dredged: Duwamish Yacht Club
DuwamYachtClub	C6	C6	3.5.1999	Dredged: Duwamish Yacht Club
Hardie Gypsum-1	1	1	11.28.1998	Dredged: Hardie-Gypsum
Hardie Gypsum-1	2	2	11.28.1998	Dredged: Hardie-Gypsum
Hardie Gypsum-1	3	3	11.28.1998	Dredged: Hardie-Gypsum
Hardie Gypsum-1	4	4	11.28.1998	Dredged: Hardie-Gypsum
Hardie Gypsum-2	2b	2b	7.15.1999	Dredged: Hardie-Gypsum
Hardie Gypsum-2	3	3	7.15.1999	Dredged: Hardie-Gypsum
Hardie Gypsum-2	4	4	7.15.1999	Dredged: Hardie-Gypsum
Hardie Gypsum-2	A	A	7.15.1999	Dredged: Hardie-Gypsum

EVENT	LOCATION ID	SAMPLE ID	SAMPLE DATE	REASON FOR EXCLUSION
Hardie Gypsum-2	B	B	7.15.1999	Dredged: Hardie-Gypsum
Hardie Gypsum-2	C	C	7.15.1999	Dredged: Hardie-Gypsum
Hardie Gypsum-2	D	D	7.15.1999	Dredged: Hardie-Gypsum
Hurlen-Boyer	C1	C1	3.4.1999	Dredged: Hurlen-Boyer
Hurlen-Boyer	C2	C2	3.4.1999	Dredged: Hurlen-Boyer
Hurlen-Boyer	C3	C3	3.4.1999	Dredged: Hurlen-Boyer
Hurlen-Boyer	C4	C4	3.5.1999	Dredged: Hurlen-Boyer
Hurlen-Boyer	C5	C5	3.5.1999	Dredged: Hurlen-Boyer
Hurlen-Boyer	C6	C6	3.5.1999	Dredged: Hurlen-Boyer
Lone Star 92	LSNW0101	C-1	5.29.1992	Dredged: Lone Star 92
Lone Star-Hardie Gypsum	c-1	c-1	6.23.1995	Dredged: Lone Star-Hardie Gypsum
Lone Star-Hardie Gypsum	c-2	c-2	6.23.1995	Dredged: Lone Star-Hardie Gypsum
Lone Star-Hardie Gypsum	c-3	c-3	6.23.1995	Dredged: Lone Star-Hardie Gypsum
Lone Star-Hardie Gypsum	c-4	c-4	6.23.1995	Dredged: Lone Star-Hardie Gypsum
Lone Star-Hardie Gypsum	c-4	c-5	6.23.1995	Dredged: Lone Star-Hardie Gypsum
Norfolk-cleanup1	NFK009	L4321-26	8.31.1994	Dredged: Norfolk (March 1999)
Norfolk-cleanup1	NFK009	L4321-27	8.31.1994	Dredged: Norfolk (March 1999)
Norfolk-cleanup1	NFK009	L4321-28	8.31.1994	Dredged: Norfolk (March 1999)
Norfolk-cleanup2	NFK008	L6725-26	8.28.1995	Dredged: Norfolk (March 1999)
Norfolk-cleanup2	NFK008	L6725-27	8.28.1995	Dredged: Norfolk (March 1999)
Norfolk-cleanup2	NFK008	L6725-28	8.28.1995	Dredged: Norfolk (March 1999)
Norfolk-cleanup2	NFK008	L6725-29	8.28.1995	Dredged: Norfolk (March 1999)
Norfolk-cleanup2	NFK008	L6725-32	8.28.1995	Dredged: Norfolk (March 1999)
Norfolk-cleanup2	NFK008	L6725-33	8.28.1995	Dredged: Norfolk (March 1999)
Norfolk-cleanup2	NFK008	L6725-34	8.28.1995	Dredged: Norfolk (March 1999)
Norfolk-cleanup2	NFK008	L7089-1	8.28.1995	Dredged: Norfolk (March 1999)
Norfolk-cleanup2	NFK008	L7089-2	8.28.1995	Dredged: Norfolk (March 1999)
Norfolk-cleanup2	NFK008	L7089-3	8.28.1995	Dredged: Norfolk (March 1999)
Norfolk-cleanup2	NFK008	L7089-4	8.28.1995	Dredged: Norfolk (March 1999)
Norfolk-cleanup2	NFK008	L7089-5	8.28.1995	Dredged: Norfolk (March 1999)
Norfolk-cleanup2	NFK008	L7089-6	8.28.1995	Dredged: Norfolk (March 1999)
Norfolk-cleanup2	NFK009	L6725-17	8.28.1995	Dredged: Norfolk (March 1999)
Norfolk-cleanup2	NFK009	L6725-18	8.28.1995	Dredged: Norfolk (March 1999)
Norfolk-cleanup2	NFK009	L6725-19	8.28.1995	Dredged: Norfolk (March 1999)
Norfolk-cleanup2	NFK009	L6725-20	8.28.1995	Dredged: Norfolk (March 1999)
Norfolk-cleanup2	NFK009	L6725-23	8.28.1995	Dredged: Norfolk (March 1999)
Norfolk-cleanup2	NFK009	L6725-24	8.28.1995	Dredged: Norfolk (March 1999)
Norfolk-cleanup2	NFK009	L6725-25	8.28.1995	Dredged: Norfolk (March 1999)
Slip4-Crowley	DMMU 1	CMS4-5	7.13.1995	Dredged: Slip4-Crowley
Slip4-Crowley	DMMU 2	CMS4-1	7.13.1995	Dredged: Slip4-Crowley
Slip4-Crowley	DMMU 3	CMS4-2	7.13.1995	Dredged: Slip4-Crowley
Slip4-Crowley	DMMU 4	CMS4-3	7.13.1995	Dredged: Slip4-Crowley

[a] Data are included in the database but are excluded from the RI chemical characterization sections because the data no longer reflect current conditions

Table D-3. Summary statistics for surface sediment samples

This large format (11 x 17) table is found in the map folio.

Table D-4. Summary statistics for subsurface sediment samples

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max. [a]	Location ID of Max. [a]	Range of Detection Limits
71-55-6	1,1,1-Trichloroethane	0/8	nd	nd	µg/kg dw			1.2 - 5.6
79-34-5	1,1,2,2-Tetrachloroethane	0/8	nd	nd	µg/kg dw			1.2 - 5.6
79-00-5	1,1,2-Trichloroethane	0/8	nd	nd	µg/kg dw			1.2 - 5.6
76-13-1	1,1,2-Trichlorotrifluoroethane	0/8	nd	nd	µg/kg dw			2.3 - 11
75-34-3	1,1-Dichloroethane	0/8	nd	nd	µg/kg dw			1.2 - 5.6
75-35-4	1,1-Dichloroethene	0/8	nd	nd	µg/kg dw			1.2 - 5.6
120-82-1	1,2,4-Trichlorobenzene	15/87	1.3	63	µg/kg dw	L8542-32	DUD261	0.80 - 400
95-50-1	1,2-Dichlorobenzene	34/87	0.98	160	µg/kg dw	L8542-32	DUD261	0.78 - 400
107-06-2	1,2-Dichloroethane	0/8	nd	nd	µg/kg dw			1.2 - 5.6
78-87-5	1,2-Dichloropropane	0/8	nd	nd	µg/kg dw			1.2 - 5.6
122-66-7	1,2-Diphenylhydrazine	0/44	nd	nd	µg/kg dw			60 - 120
541-73-1	1,3-Dichlorobenzene	12/87	1.1	18	µg/kg dw	L8542-33	DUD262	0.78 - 400
106-46-7	1,4-Dichlorobenzene	39/87	0.80	1,400	µg/kg dw	SD-DR008-0000A	DR008	0.80 - 400
95-95-4	2,4,5-Trichlorophenol	0/81	nd	nd	µg/kg dw			120 – 2,000
88-06-2	2,4,6-Trichlorophenol	0/81	nd	nd	µg/kg dw			120 – 2,000
120-83-2	2,4-Dichlorophenol	0/81	nd	nd	µg/kg dw			30 – 1,200
105-67-9	2,4-Dimethylphenol	0/87	nd	nd	µg/kg dw			9.0 - 790
51-28-5	2,4-Dinitrophenol	1/81	300	300	µg/kg dw	SD-DR206-0000A	DR206	60 – 4,000
121-14-2	2,4-Dinitrotoluene	0/81	nd	nd	µg/kg dw			12 – 2,000
606-20-2	2,6-Dinitrotoluene	0/81	nd	nd	µg/kg dw			12 – 2,000
110-75-8	2-Chloroethyl vinyl ether	0/8	nd	nd	µg/kg dw			5.9 - 28
91-58-7	2-Chloronaphthalene	0/81	nd	nd	µg/kg dw			18 - 400
95-57-8	2-Chlorophenol	0/81	nd	nd	µg/kg dw			20 - 400
591-78-6	2-Hexanone	0/8	nd	nd	µg/kg dw			5.9 - 28
91-57-6	2-Methylnaphthalene	13/87	20	880	µg/kg dw	L8542-32	DUD261	17 - 400
95-48-7	2-Methylphenol	0/87	nd	nd	µg/kg dw			9.0 – 400
88-74-4	2-Nitroaniline	0/81	nd	nd	µg/kg dw			100 – 2,000
88-75-5	2-Nitrophenol	0/81	nd	nd	µg/kg dw			30 – 2,000
91-94-1	3,3'-Dichlorobenzidine	0/81	nd	nd	µg/kg dw			30 – 2,000

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max. [a]	Location ID of Max. [a]	Range of Detection Limits
	3-Methylphenol and 4-Methylphenol Coelution	2/33	80	170	µg/kg dw	SD-DR008-0000A	DR008	20 – 20
99-09-2	3-Nitroaniline	0/81	nd	nd	µg/kg dw			120 – 2,000
72-54-8	4,4'-DDD	19/38	1.1	46	µg/kg dw	L4378-10	DUD006	1.3 – 2.0
72-55-9	4,4'-DDE	15/38	1.0	66	µg/kg dw	L4378-9	DUD006	1.0 - 2.6
50-29-3	4,4'-DDT	1/38	2.8	2.8	µg/kg dw	L6725-8	NFK207	1.1 – 5.0
534-52-1	4,6-Dinitro-o-cresol	0/81	nd	nd	µg/kg dw			60 – 4,000
101-55-3	4-Bromophenyl phenyl ether	0/81	nd	nd	µg/kg dw			12 - 400
59-50-7	4-Chloro-3-methylphenol	0/81	nd	nd	µg/kg dw			40 - 790
106-47-8	4-Chloroaniline	3/81	200	1,200	µg/kg dw	L8542-32	DUD261	60 – 1,200
7005-72-3	4-Chlorophenyl phenyl ether	0/81	nd	nd	µg/kg dw			18 - 400
106-44-5	4-Methylphenol	5/54	62	370	µg/kg dw	L8542-19	DUD254	17 - 400
100-01-6	4-Nitroaniline	0/81	nd	nd	µg/kg dw			100 – 2,000
100-02-7	4-Nitrophenol	0/81	nd	nd	µg/kg dw			60 – 2,000
83-32-9	Acenaphthene	34/87	19	330	µg/kg dw	L4378-8	DUD006	13 - 400
208-96-8	Acenaphthylene	15/87	20	58	µg/kg dw	L8542-32	DUD261	17 - 400
67-64-1	Acetone	2/8	17	53	µg/kg dw	W20-SB-04117-0020	SB-04117	6.6 - 37
	Acid volatile sulfides	11/12	76	4,600	mg/kg dw	L4378-13	DUD020	51 - 51
309-00-2	Aldrin	0/38	nd	nd	µg/kg dw			0.75 - 2.6
319-84-6	alpha-BHC	0/32	nd	nd	µg/kg dw			1.0 - 2.6
5103-71-9	alpha-Chlordane	0/16	nd	nd	µg/kg dw			1.0 – 4.0
959-98-8	alpha-Endosulfan	0/16	nd	nd	µg/kg dw			1.0 – 1.0
7429-90-5	Aluminum	95/95	6,500	40,000	mg/kg dw	L4378-15	DUD020	na
7664-41-7	Ammonia	6/6	12	130	mg/kg dw	S2	5	na
62-53-3	Aniline	0/44	nd	nd	µg/kg dw			60 - 120
120-12-7	Anthracene	64/87	20	760	µg/kg dw	L4378-9	DUD006	17 - 400
7440-36-0	Antimony	36/99	0.90	148	mg/kg dw	SD-DR054-0020	DR054	1.2 - 11
12674-11-2	Aroclor-1016	0/150	nd	nd	µg/kg dw			0.10 – 24,000
11104-28-2	Aroclor-1221	0/92	nd	nd	µg/kg dw			0.10 - 80
11141-16-5	Aroclor-1232	0/92	nd	nd	µg/kg dw			0.10 - 80
53469-21-9	Aroclor-1242	38/150	22	2,500	µg/kg dw	SD-DR021-0020	DR021	0.10 – 24,000
12672-29-6	Aroclor-1248	48/150	13	13,000	µg/kg dw	L8542-32	DUD261	0.10 – 24,000
11097-69-1	Aroclor-1254	89/150	20	26,000	µg/kg dw	SD-04107-0015	SD-04107	0.10 – 130,000
11096-82-5	Aroclor-1260	99/150	9.8	890,000	µg/kg dw	SD-04905-0003	SD-04905	0.10 – 15,000
37324-23-5	Aroclor-1262	6/6	120	13,000	µg/kg dw	SD2B-DUW13-5000C	SD-DUW13D	na
7440-38-2	Arsenic	85/101	4.0	622	mg/kg dw	SD-DR054-0020	DR054	2.9 - 18
7440-39-3	Barium	95/95	12	636	mg/kg dw	SD-DR054-0020	DR054	na

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max. [a]	Location ID of Max. [a]	Range of Detection Limits
71-43-2	Benzene	0/8	nd	nd	µg/kg dw			1.2 - 5.6
92-87-5	Benzidine	0/44	nd	nd	µg/kg dw			720 – 1,400
56-55-3	Benzo(a)anthracene	78/87	20	1,500	µg/kg dw	L4378-9, SD-DR054-0020	DUD006, DR054	17 - 50
50-32-8	Benzo(a)pyrene	74/87	30	1,800	µg/kg dw	L4378-10	DUD006	17 - 400
205-99-2	Benzo(b)fluoranthene	73/84	30	2,900	µg/kg dw	L4378-10	DUD006	20 - 67
191-24-2	Benzo(g,h,i)perylene	72/87	30	790	µg/kg dw	L8542-20	DUD254	17 - 400
207-08-9	Benzo(k)fluoranthene	68/84	20	1,200	µg/kg dw	SD-04107-0003, L8542-27	SD-04107, DUD258	20 - 400
56832-73-6	Benzofluoranthenes (total-calc'd)	73/84	50	4,000	µg/kg dw	L4378-10	DUD006	20 - 67
65-85-0	Benzoic acid	12/87	140	400	µg/kg dw	L8542-27	DUD258	87 – 4,000
100-51-6	Benzyl alcohol	0/87	nd	nd	µg/kg dw			10 – 2,000
7440-41-7	Beryllium	92/95	0.10	0.75	mg/kg dw	L4378-15	DUD020	0.10 - 0.36
319-85-7	beta-BHC	0/32	nd	nd	µg/kg dw			1.0 - 2.6
33213-65-9	beta-Endosulfan	0/16	nd	nd	µg/kg dw			2.0 – 2.0
111-91-1	bis(2-chloroethoxy)methane	0/81	nd	nd	µg/kg dw			30 - 400
111-44-4	bis(2-chloroethyl)ether	0/81	nd	nd	µg/kg dw			18 - 400
39638-32-9	bis(2-chloroisopropyl)ether	0/37	nd	nd	µg/kg dw			40 - 400
117-81-7	bis(2-ethylhexyl)phthalate	81/89	20	18,000	µg/kg dw	L8542-32	DUD261	20 - 86
108-60-1	bis-chloroisopropyl ether	0/44	nd	nd	µg/kg dw			60 - 120
75-27-4	Bromodichloromethane	0/8	nd	nd	µg/kg dw			1.2 - 5.6
75-25-2	Bromoform	0/8	nd	nd	µg/kg dw			1.2 - 5.6
74-83-9	Bromomethane	0/8	nd	nd	µg/kg dw			2.3 - 11
85-68-7	Butyl benzyl phthalate	47/89	20	1,300	µg/kg dw	L4378-7	DUD006	17 - 400
7440-43-9	Cadmium	88/101	0.040	18	mg/kg dw	L4378-10, SD-04107-0003	DUD006, SD-04107	0.17 - 1.1
7440-70-2	Calcium	89/89	3400	28,100	mg/kg dw	SD-DR054-0000A	DR054	na
86-74-8	Carbazole	35/81	20	410	µg/kg dw	L4378-17	DUD020	20 - 400
75-15-0	Carbon disulfide	1/8	18	18	µg/kg dw	W20-SB-04117-0020	SB-04117	1.2 - 5.6
56-23-5	Carbon tetrachloride	0/8	nd	nd	µg/kg dw			1.2 - 5.6
57-74-9	Chlordane	2/22	29	70	µg/kg dw	L4378-5	DUD006	1.1 - 16
108-90-7	Chlorobenzene	0/8	nd	nd	µg/kg dw			1.2 - 5.6
75-00-3	Chloroethane	0/8	nd	nd	µg/kg dw			2.3 - 11
67-66-3	Chloroform	1/8	1.8	1.8	µg/kg dw	SD-04107-0003	SD-04107	1.2 - 5.6
74-87-3	Chloromethane	0/8	nd	nd	µg/kg dw			2.3 - 11
7440-47-3	Chromium	95/95	9.6	1,100	mg/kg dw	L8542-35	DUD027	na

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max. [a]	Location ID of Max. [a]	Range of Detection Limits
18540-29-9	Chromium VI	0/2	nd	nd	mg/kg dw			15 - 15
218-01-9	Chrysene	81/87	18	2,000	µg/kg dw	SD-04107-0003	SD-04107	18 - 21
156-59-2	cis-1,2-Dichloroethene	1/8	2.3	2.3	µg/kg dw	W20-SB-04119-0030	SB-04119	1.2 - 5.6
10061-01-5	cis-1,3-Dichloropropene	0/8	nd	nd	µg/kg dw			1.2 - 5.6
7440-48-4	Cobalt	51/51	3.5	40	mg/kg dw	SD-DR054-0020	DR054	na
7440-50-8	Copper	101/101	7.2	802	mg/kg dw	SD-DR054-0000A	DR054	na
360-68-9	Coprostanol	15/44	300	37,000	µg/kg dw	L8542-32	DUD261	120 - 220
57-12-5	Cyanide	1/9	0.35	0.35	mg/kg dw	W20-SB-04117-0020	SB-04117	0.14 - 63
	DDTs (total-calc'd) [e]	22/38	1.0	95	µg/kg dw	L4378-9	DUD006	1.5 - 2.7
319-86-8	delta-BHC	0/16	nd	nd	µg/kg dw			1.5 - 2.6
53-70-3	Dibenzo(a,h)anthracene	38/87	20	220	µg/kg dw	SD-DR054-0020	DR054	17 - 400
132-64-9	Dibenzofuran	20/87	20	220	µg/kg dw	L8542-32	DUD261	17 - 400
124-48-1	Dibromochloromethane	0/8	nd	nd	µg/kg dw			1.2 - 5.6
1002-53-5	Dibutyltin as ion	19/25	7.0	250	µg/kg dw	SD-DR054-0000A	DR054	1.0 – 2.0
75-09-2	Dichloromethane	0/8	nd	nd	µg/kg dw			2.3 – 11
60-57-1	Dieldrin	7/38	1.8	7.8	µg/kg dw	E	E	1.1 - 2.6
84-66-2	Diethyl phthalate	0/89	nd	nd	µg/kg dw			17 – 400
131-11-3	Dimethyl phthalate	12/89	19	96	µg/kg dw	L8542-19	DUD254	12 – 400
84-74-2	Di-n-butyl phthalate	29/89	20	320	µg/kg dw	SD-DR008-0000A	DR008	17 – 400
117-84-0	Di-n-octyl phthalate	2/89	30	50	µg/kg dw	SD-DR021-0000A	DR021	17 – 400
115-29-7	Endosulfan	0/16	nd	nd	µg/kg dw			1.5 - 2.6
1031-07-8	Endosulfan sulfate	0/31	nd	nd	µg/kg dw			1.5 – 4.0
72-20-8	Endrin	0/32	nd	nd	µg/kg dw			1.5 - 2.6
7421-93-4	Endrin aldehyde	1/31	10	10	µg/kg dw	SD-DR021-0000A	DR021	1.5 - 25
53494-70-5	Endrin ketone	0/16	nd	nd	µg/kg dw			2.0 – 2.0
100-41-4	Ethylbenzene	0/14	nd	nd	µg/kg dw			1.2 – 9.0
206-44-0	Fluoranthene	83/87	31	3,400	µg/kg dw	SD-DR054-0020, L4378-9	DR054, DUD006	18 - 20
86-73-7	Fluorene	38/87	20	500	µg/kg dw	L8542-32	DUD261	17 - 400
58-89-9	gamma-BHC	0/35	nd	nd	µg/kg dw			0.75 - 2.6
5103-74-2	gamma-Chlordane	0/16	nd	nd	µg/kg dw			1.0 – 6.0
8006-61-9	Gasoline	0/7	nd	nd	mg/kg dw			24 – 40
8001-58-9	Heavy Oil	4/7	240	6,200	mg/kg dw	L8542-20	DUD254	120 – 130
76-44-8	Heptachlor	0/38	nd	nd	µg/kg dw			0.75 – 3.0
1024-57-3	Heptachlor epoxide	0/32	nd	nd	µg/kg dw			1.0 – 4.0
118-74-1	Hexachlorobenzene	2/86	2.0	2.1	µg/kg dw	L8542-18	DUD253	0.78 – 400
87-68-3	Hexachlorobutadiene	0/87	nd	nd	µg/kg dw			2.5 – 790

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max. [a]	Location ID of Max. [a]	Range of Detection Limits
77-47-4	Hexachlorocyclopentadiene	0/81	nd	nd	µg/kg dw			30 – 2,000
67-72-1	Hexachloroethane	0/87	nd	nd	µg/kg dw			17 – 790
193-39-5	Indeno(1,2,3-cd)pyrene	72/87	20	850	µg/kg dw	SD-DR054-0020	DR054	17 – 400
7439-89-6	Iron	95/95	9800	65,200	mg/kg dw	SD-DR054-0000A	DR054	na
78-59-1	Isophorone	0/81	nd	nd	µg/kg dw			20 – 400
7439-92-1	Lead	99/101	3.0	12,000	mg/kg dw	L8542-35	DUD027	3.6 - 7.8
7439-95-4	Magnesium	91/91	1800	11,000	mg/kg dw	L4378-15	DUD020	na
7439-96-5	Manganese	95/95	82	937	mg/kg dw	SD-DR054-0000A	DR054	na
7439-97-6	Mercury	95/102	0.020	3.3	mg/kg dw	L4378-8	DUD006	0.020 - 0.060
72-43-5	Methoxychlor	0/32	nd	nd	µg/kg dw			1.0 - 16
78-93-3	Methyl ethyl ketone	1/8	13	13	µg/kg dw	W20-SB-04117-0020	SB-04117	5.9 - 28
108-10-1	Methyl iso-butyl ketone	0/8	nd	nd	µg/kg dw			5.9 - 28
7439-98-7	Molybdenum	26/44	1.9	6.4	mg/kg dw	L4378-17, L8542-20	DUD020, DUD254	1.1 - 7.4
91-20-3	Naphthalene	13/87	20	280	µg/kg dw	L8542-32	DUD261	17 – 400
2406-65-7	n-Butyltin	9/25	7.0	170	µg/kg dw	SD-DR054-0020	DR054	1.0 – 65
7440-02-0	Nickel	101/101	8.0	45	mg/kg dw	L8542-20	DUD254	na
98-95-3	Nitrobenzene	0/81	nd	nd	µg/kg dw			20 – 400
62-75-9	N-Nitrosodimethylamine	0/44	nd	nd	µg/kg dw			120 – 250
621-64-7	N-Nitroso-di-n-propylamine	0/81	nd	nd	µg/kg dw			30 – 400
86-30-6	N-Nitrosodiphenylamine	4/87	33	190	µg/kg dw	L4378-7	DUD006	10 – 400
25154-52-3	Nonyl-phenol	1/1	850	850	µg/kg dw	L6725-8	NFK207	na
37680-65-2	PCB-18	20/33	1.0	270	µg/kg dw	SD-DR021-0020	DR021	1.0 – 1.0
7012-37-5	PCB-28	22/33	1.0	220	µg/kg dw	SD-DR021-0020	DR021	1.0 – 1.0
41464-39-5	PCB-44	24/33	1.0	52	µg/kg dw	SD-DR021-0020	DR021	1.0 – 1.0
35693-99-3	PCB-55	24/33	1.0	150	µg/kg dw	SD-DR021-0020	DR021	1.0 – 14
32598-10-0	PCB-66	25/33	2.0	140	µg/kg dw	SD-DR021-0020	DR021	1.0 – 1.0
32598-13-3	PCB-77	0/33	nd	nd	µg/kg dw			1.0 – 9.0
70362-50-4	PCB-81	0/33	nd	nd	µg/kg dw			1.0 – 2.0
37680-73-2	PCB-101	24/33	1.0	130	µg/kg dw	SD-DR068-0000A	DR068	1.0 – 1.0
32598-14-4	PCB-105	22/33	1.0	43	µg/kg dw	SD-DR068-0000A	DR068	1.0 – 1.0
74472-37-0	PCB-114	3/33	2.0	5.0	µg/kg dw	SD-DR137-0000A-CC	DR137	1.0 – 4.0
31508-00-6	PCB-118	25/33	1.0	110	µg/kg dw	SD-DR068-0000A	DR068	1.0 – 1.0
65510-44-3	PCB-123	0/33	nd	nd	µg/kg dw			1.0 – 10
57465-28-8	PCB-126	4/33	1.0	4.0	µg/kg dw	SD-DR025-0020	DR025	1.0 – 1.0
38380-07-3	PCB-128	22/33	1.0	27	µg/kg dw	SD-DR068-0000A	DR068	1.0 – 1.0
35065-28-2	PCB-138	26/33	1.0	160	µg/kg dw	SD-DR068-0000A	DR068	1.0 – 1.0

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max. [a]	Location ID of Max. [a]	Range of Detection Limits
35065-27-1	PCB-153	25/33	2.0	98	µg/kg dw	SD-DR068-0000A	DR068	1.0 – 1.0
38380-08-4	PCB-156	17/33	1.0	16	µg/kg dw	SD-DR068-0000A	DR068	1.0 – 1.0
69782-90-7	PCB-157	6/33	1.0	3.0	µg/kg dw	SD-DR025-0020, SD-DR068-0000A, SD-DR021-0020	DR025, DR068, DR021	1.0 – 1.0
52663-72-6	PCB-167	11/33	1.0	11	µg/kg dw	SD-DR008-0020	DR008	1.0 – 1.0
32774-16-6	PCB-169	0/33	nd	nd	µg/kg dw			1.0 – 1.0
35065-30-6	PCB-170	20/33	2.0	29	µg/kg dw	SD-DR206-0000A	DR206	1.0 – 7.0
35065-29-3	PCB-180	25/33	1.0	53	µg/kg dw	SD-DR206-0000A	DR206	1.0 – 1.0
52663-68-0	PCB-187	24/33	1.0	28	µg/kg dw	SD-DR206-0000A	DR206	1.0 – 1.0
39635-31-9	PCB-189	1/33	1.0	1.0	µg/kg dw	SD-DR044-0020	DR044	1.0 – 1.0
52663-78-2	PCB-195	12/33	1.0	6.0	µg/kg dw	SD-DR206-0000A	DR206	1.0 – 1.0
40186-72-9	PCB-206	13/33	1.0	3.0	µg/kg dw	SD-DR044-0020, SD-DR025-0020, SD-DR206-0000A, SD-DR008-0020	DR044, DR025, DR206, DR008	1.0 – 1.0
2051-24-3	PCB-209	3/33	1.0	1.0	µg/kg dw	SD-DR008-0020, SD-DR044-0020, SD-DR025-0020	DR008, DR044, DR025	1.0 – 1.0
	PCBs (total-calc'd) [b]	111/150	22.8	890,000	µg/kg dw	SD-04905-0003	SD-04905	0.10 - 45
87-86-5	Pentachlorophenol	2/87	70	300	µg/kg dw	SD-DR206-0000A	DR206	30 – 2,000
85-01-8	Phenanthrene	75/87	20	4,100	µg/kg dw	L4378-9	DUD006	18 - 400
108-95-2	Phenol	6/87	20	920	µg/kg dw	L4378-7	DUD006	17 - 790
7440-09-7	Potassium	69/69	370	5,000	mg/kg dw	L4378-15	DUD020	na
129-00-0	Pyrene	84/87	30	4,900	µg/kg dw	L8542-20	DUD254	18 - 20
7782-49-2	Selenium	13/95	0.60	14	mg/kg dw	SD-04107-0003	SD-04107	1.0 - 18
7440-22-4	Silver	91/101	0.050	16	mg/kg dw	L8542-32	DUD261	0.13 - 1.5
7440-23-5	Sodium	91/91	720	14,000	mg/kg dw	L4378-15, L8542-32, SD-DR044-0000A	DUD020, DUD261, DR044	na
100-42-5	Styrene	0/8	nd	nd	µg/kg dw			1.2 - 5.6
	Sulfides (total)	7/9	11.1	1,100	mg/kg dw	S1	4	1.1 - 1.3
1461-25-2	Tetrabutyltin as ion	4/25	5.0	40	µg/kg dw	SD-DR054-0020	DR054	3.0 - 15
127-18-4	Tetrachloroethene	0/11	nd	nd	µg/kg dw			1.2 - 9
7440-28-0	Thallium	23/95	0.030	13	mg/kg dw	SD-04107-0003	SD-04107	0.080 - 74
7440-31-5	Tin	33/33	2.0	46	mg/kg dw	SD-DR054-0020	DR054	na
108-88-3	Toluene	1/8	1.8	1.8	µg/kg dw	W20-SB-04117-0020	SB-04117	1.2 - 5.6

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max. [a]	Location ID of Max. [a]	Range of Detection Limits
	Total HPAH (calc'd) [c]	84/87	30	15,800	µg/kg dw	L8542-20	DUD254	50 - 54
	Total LPAH (calc'd) [d]	75/87	20	5,610	µg/kg dw	L4378-9	DUD006	50 - 400
	Total solids	62/62	45	89	% ww	L6725-9	NFK207	na
8001-35-2	Toxaphene	0/32	nd	nd	µg/kg dw			10 - 26
	TPH	13/15	26	4,300	mg/kg dw	SD-04107-0003	SD-04107	20 - 20
68334-30-5	TPH - Diesel #2 Range	4/7	70	2,600	mg/kg dw	L8542-35	DUD027	60 - 63
156-60-5	trans-1,2-Dichloroethene	0/8	nd	nd	µg/kg dw			1.2 - 5.6
10061-02-6	trans-1,3-Dichloropropene	0/8	nd	nd	µg/kg dw			1.2 - 5.6
688-73-3	Tributyltin as ion	20/25	3.0	2,500	µg/kg dw	SD-DR054-0000A	DR054	1.0 – 1.0
79-01-6	Trichloroethene	2/14	7.3	23	µg/kg dw	W20-SB-04119-0030	SB-04119	1.2 - 9
75-69-4	Trichlorofluoromethane	0/8	nd	nd	µg/kg dw			2.3 - 11
7440-62-2	Vanadium	51/51	34	92	mg/kg dw	SD-DR021-0020	DR021	na
108-05-4	Vinyl acetate	0/8	nd	nd	µg/kg dw			5.9 - 28
75-01-4	Vinyl chloride	0/8	nd	nd	µg/kg dw			2.3 - 11
108-38-3/106-42-3	Xylene (meta & para)	0/2	nd	nd	µg/kg dw			1.4 - 1.8
95-47-6	Xylene (ortho)	0/2	nd	nd	µg/kg dw			1.4 - 1.8
1330-20-7	Xylene (total)	0/12	nd	nd	µg/kg dw			2.3 - 11
7440-66-6	Zinc	101/101	22	1,600	mg/kg dw	SD2B-DUW53-0000C	SD-DUW53	na

na – not applicable

nd – not detected

[a] If the same detected maximum concentration was reported for more than one sample, all samples with that maximum concentration are reported.

[b] Total PCBs are calculated as the sum of the concentrations of detected Aroclors. For samples in which all individual compounds were undetected, the single highest detection limit for that sample represents the sum.

[c] HPAHs calculated using detected concentrations of fluoranthene, pyrene, benzo(a)anthracene, chrysene, total benzofluoranthenes, benzo(a)pyrene, indeno(1,2,3,-c,d)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene. For samples in which all individual compounds were undetected, the single highest detection limit for that sample represents the sum.

[d] LPAHs calculated using detected concentrations of naphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, and anthracene. For samples in which all individual compounds were undetected, the single highest detection limit for that sample represents the sum.

[e] Total DDTs calculated using detected concentrations of 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT. For samples in which all individual compounds were undetected, the single highest detection limit for that sample represents the sum.

Table D-5. Summary statistics for porewater samples

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
7429-90-5	Aluminum	8/15	77	378	µg/L	PW-DR055-0000	DR055	50 - 77
7440-36-0	Antimony	1/15	30	30	µg/L	PW-DR244-0000	DR244	5.0 - 50
7440-38-2	Arsenic	12/15	26	114	µg/L	PW-DR244-0000	DR244	10 - 30
7440-39-3	Barium	15/15	4.0	214	µg/L	PW-DR262-0000	DR262	na
	Beryllium	0/15	nd	nd	µg/L			5.0 - 5.0
7440-43-9	Cadmium	4/15	4.0	4.0	µg/L	PW-DR109-0000, PW-DR147-0000, PW-DR181-0000, PW-DR244-0000	DR109, DR147, DR181, DR244	5.0 - 5.0
7440-70-2	Calcium	15/15	15,300	347,000	µg/L	PW-DR018-0000	DR018	na
7440-47-3	Chromium	0/15	nd	nd	µg/L			10 - 10
7440-48-4	Cobalt	0/15	nd	nd	µg/L			10 - 10
7440-50-8	Copper	4/15	1.0	5.0	µg/L	PW-DR109-0000, PW-DR262-0000	DR109, DR262	4.0 - 4.0
1002-53-5	Dibutyltin as ion	4/15	0.0070	0.010	µg/L	PW-DR018-0000, PW-DR038-0000, PW-DR055-0000	DR018, DR038, DR055	0.050 - 0.050
7439-89-6	Iron	15/15	186	18,300	µg/L	PW-DR244-0000	DR244	na
7439-92-1	Lead	13/15	0.60	4.0	µg/L	PW-DR109-0000	DR109	1.0 - 1.0
7439-95-4	Magnesium	15/15	51,000	1,100,000	µg/L	PW-DR018-0000, PW-DR055-0000	DR018, DR055	na
7439-96-5	Manganese	15/15	13	5,440	µg/L	PW-DR244-0000	DR244	na
7439-97-6	Mercury	0/15	nd	nd	µg/L			0.10 - 0.10
2406-65-7	n-Butyltin	0/15	nd	nd	µg/L			0.050 - 0.050
7440-02-0	Nickel	0/15	nd	nd	µg/L			20 – 30
7440-09-7	Potassium	15/15	41,600	373,000	µg/L	PW-DR055-0000	DR055	na
7782-49-2	Selenium	0/15	nd	nd	µg/L			20 – 30
7440-22-4	Silver	6/15	0.30	0.50	µg/L	PW-DR301-0000	DR301	1.0 - 1.0
7440-23-5	Sodium	15/15	1,160,000	9,730,000	µg/L	PW-DR038-0000	DR038	na
1461-25-2	Tetrabutyltin as ion	0/15	nd	nd	µg/L			0.050 - 0.050
7440-28-0	Thallium	0/15	nd	nd	µg/L			1.0 - 1.0
7440-31-5	Tin	0/15	nd	nd	µg/L			10 – 50
688-73-3	Tributyltin as ion	8/15	0.0080	0.080	µg/L	PW-DR055-0000	DR055	0.050 - 0.050
7440-62-2	Vanadium	15/15	3.0	22	µg/L	PW-DR244-0000	DR244	na
7440-66-6	Zinc	3/15	4.0	6.0	µg/L	PW-DR140-0000	DR140	10 – 10

nd – not detected; na – not applicable

Table D-6a. Summary statistics for adult chinook salmon fillet samples

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
120-82-1	1,2,4-Trichlorobenzene	0/19	nd	nd	µg/kg ww			40 - 50
95-50-1	1,2-Dichlorobenzene	0/19	nd	nd	µg/kg ww			40 - 50
122-66-7	1,2-Diphenylhydrazine	0/19	nd	nd	µg/kg ww			40 - 50
541-73-1	1,3-Dichlorobenzene	0/19	nd	nd	µg/kg ww			40 - 70
106-46-7	1,4-Dichlorobenzene	0/19	nd	nd	µg/kg ww			40 - 50
95-95-4	2,4,5-Trichlorophenol	0/19	nd	nd	µg/kg ww			20 - 20
88-06-2	2,4,6-Trichlorophenol	0/19	nd	nd	µg/kg ww			40 - 70
120-83-2	2,4-Dichlorophenol	0/19	nd	nd	µg/kg ww			40 - 70
105-67-9	2,4-Dimethylphenol	0/19	nd	nd	µg/kg ww			40 - 70
51-28-5	2,4-Dinitrophenol	0/19	nd	nd	µg/kg ww			260 - 400
121-14-2	2,4-Dinitrotoluene	0/19	nd	nd	µg/kg ww			40 - 200
606-20-2	2,6-Dinitrotoluene	0/19	nd	nd	µg/kg ww			20 - 20
91-58-7	2-Chloronaphthalene	0/19	nd	nd	µg/kg ww			10 - 10
95-57-8	2-Chlorophenol	0/19	nd	nd	µg/kg ww			40 - 70
91-57-6	2-Methylnaphthalene	0/19	nd	nd	µg/kg ww			20 - 20
95-48-7	2-Methylphenol	0/19	nd	nd	µg/kg ww			40 - 50
88-74-4	2-Nitroaniline	0/19	nd	nd	µg/kg ww			40 - 200
88-75-5	2-Nitrophenol	0/19	nd	nd	µg/kg ww			40 - 50
99-09-2	3-Nitroaniline	0/19	nd	0	µg/kg ww			80 - 300
72-54-8	4,4'-DDD	79/83	0.58	6.47	µg/kg ww	DU-TM28	DUWAMISH S	0.52 - 0.52
72-55-9	4,4'-DDE	83/83	2.4	53.1	µg/kg ww	DU-TM30	DUWAMISH S	na
50-29-3	4,4'-DDT	54/83	0.53	2.7	µg/kg ww	DU-T5	DUWAMISH S	0.52 - 2.0
534-52-1	4,6-Dinitro-o-cresol	0/19	nd	nd	µg/kg ww			200 - 300
101-55-3	4-Bromophenyl phenyl ether	0/18	nd	nd	µg/kg ww			40 - 70
59-50-7	4-Chloro-3-methylphenol	0/19	nd	nd	µg/kg ww			40 - 70
106-47-8	4-Chloroaniline	0/19	nd	nd	µg/kg ww			20 - 400
7005-72-3	4-Chlorophenyl phenyl ether	0/19	nd	nd	µg/kg ww			40 - 70
106-44-5	4-Methylphenol	0/19	nd	nd	µg/kg ww			40 - 70
100-01-6	4-Nitroaniline	0/19	nd	nd	µg/kg ww			80 - 300

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
100-02-7	4-Nitrophenol	0/19	nd	nd	µg/kg ww			400 - 540
83-32-9	Acenaphthene	0/19	nd	nd	µg/kg ww			10 - 10
208-96-8	Acenaphthylene	0/19	nd	nd	µg/kg ww			10 - 10
309-00-2	Aldrin	0/83	nd	nd	µg/kg ww			0.3 - 0.67
319-84-6	alpha-BHC	6/83	0.63	1.0	µg/kg ww	DU-T5	DUWAMISH S	0.5 - 0.52
5103-71-9	alpha-Chlordane	49/83	0.52	13.7	µg/kg ww	DU-TM34	DUWAMISH S	0.5 - 0.52
959-98-8	alpha-Endosulfan	0/83	nd	nd	µg/kg ww			0.5 - 0.67
62-53-3	Aniline	0/19	nd	nd	µg/kg ww			45 - 50
120-12-7	Anthracene	0/19	nd	nd	µg/kg ww			20 - 20
12674-11-2	Aroclor-1016	0/83	nd	nd	µg/kg ww			20 - 20
11104-28-2	Aroclor-1221	0/83	nd	nd	µg/kg ww			20 - 20
11141-16-5	Aroclor-1232	0/83	nd	nd	µg/kg ww			20 - 20
53469-21-9	Aroclor-1242	0/83	nd	nd	µg/kg ww			10 - 20
12672-29-6	Aroclor-1248	0/83	nd	nd	µg/kg ww			2.0 - 2.0
11097-69-1	Aroclor-1254	72/72	11	87.8	µg/kg ww	DU-T14	DUWAMISH S	na
11096-82-5	Aroclor-1260	71/72	2.8	72	µg/kg ww	DU-T14	DUWAMISH S	2.0 - 2.0
7440-38-2	Arsenic	18/18	0.58	1.4	mg/kg ww	DU-T2	DUWAMISH S	na
7440-38-2	Arsenic					DU-T3	DUWAMISH S	
56-55-3	Benzo(a)anthracene	0/19	nd	nd	µg/kg ww			40 - 70
50-32-8	Benzo(a)pyrene	0/19	nd	nd	µg/kg ww			10 - 10
205-99-2	Benzo(b)fluoranthene	0/19	nd	nd	µg/kg ww			40 - 50
191-24-2	Benzo(g,h,i)perylene	0/19	nd	nd	µg/kg ww			40 - 70
207-08-9	Benzo(k)fluoranthene	0/19	nd	nd	µg/kg ww			40 - 50
65-85-0	Benzoic acid	0/19	nd	nd	µg/kg ww			260 - 300
100-51-6	Benzyl alcohol	0/19	nd	nd	µg/kg ww			40 - 50
319-85-7	beta-BHC	0/83	nd	nd	µg/kg ww			0.67 - 1.0
33213-65-9	beta-Endosulfan	0/83	nd	nd	µg/kg ww			1.0 - 1.3
111-91-1	bis(2-chloroethoxy)methane	0/19	nd	nd	µg/kg ww			40 - 70
111-44-4	bis(2-chloroethyl)ether	0/19	nd	nd	µg/kg ww			40 - 50
117-81-7	bis(2-ethylhexyl)phthalate	4/19	430	5,350	µg/kg ww	DU-T2	DUWAMISH S	65 - 70
108-60-1	bis-chloroisopropyl ether	0/19	nd	nd	µg/kg ww			40 - 50

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
85-68-7	Butyl benzyl phthalate	0/19	nd	nd	µg/kg ww			60 - 70
86-74-8	Carbazole	0/19	nd	nd	µg/kg ww			40 - 70
218-01-9	Chrysene	0/19	nd	nd	µg/kg ww			40 - 70
7440-50-8	Copper	18/18	0.47	1.09	mg/kg ww	DU-T5	DUWAMISH S	na
360-68-9	Coprostanol	0/7	nd	nd	µg/kg ww			400 - 400
	DDTs (total-calc'd)[e]	83/83	2.5	58.42	µg/kg ww	DU-TM30	DUWAMISH S	na
319-86-8	delta-BHC	0/83	nd	nd	µg/kg ww			0.5 - 0.52
53-70-3	Dibenzo(a,h)anthracene	0/19	nd	nd	µg/kg ww			40 - 70
132-64-9	Dibenzofuran	0/19	nd	nd	µg/kg ww			40 - 50
60-57-1	Dieldrin	6/83	0.72	1.1	µg/kg ww	DU-T5	DUWAMISH S	0.5 - 0.67
84-66-2	Diethyl phthalate	0/19	nd	nd	µg/kg ww			40 - 50
131-11-3	Dimethyl phthalate	0/19	nd	nd	µg/kg ww			40 - 50
84-74-2	Di-n-butyl phthalate	0/19	nd	nd	µg/kg ww			45 - 50
117-84-0	Di-n-octyl phthalate	0/19	nd	nd	µg/kg ww			10 - 10
1031-07-8	Endosulfan sulfate	0/83	nd	nd	µg/kg ww			1.0 - 1.3
72-20-8	Endrin	0/83	nd	nd	µg/kg ww			1.0 - 1.3
7421-93-4	Endrin aldehyde	0/83	nd	nd	µg/kg ww			1.0 - 1.1
206-44-0	Fluoranthene	0/19	nd	nd	µg/kg ww			20 - 20
86-73-7	Fluorene	0/19	nd	nd	µg/kg ww			40 - 50
58-89-9	gamma-BHC	1/83	0.54	0.54	µg/kg ww	DU-T3	DUWAMISH S	0.5 - 0.52
5103-74-2	gamma-Chlordane	14/83	0.79	2.37	µg/kg ww	DU-TM35	DUWAMISH S	0.5 - 0.52
76-44-8	Heptachlor	0/83	nd	nd	µg/kg ww			0.5 - 0.52
1024-57-3	Heptachlor epoxide	0/83	nd	nd	µg/kg ww			0.5 - 0.52
118-74-1	Hexachlorobenzene	0/19	nd	nd	µg/kg ww			40 - 70
87-68-3	Hexachlorobutadiene	0/19	nd	nd	µg/kg ww			40 - 50
77-47-4	Hexachlorocyclopentadiene	0/19	nd	nd	µg/kg ww			166 - 200
67-72-1	Hexachloroethane	0/19	nd	nd	µg/kg ww			40 - 70
193-39-5	Indeno(1,2,3-cd)pyrene	0/19	nd	nd	µg/kg ww			40 - 70
78-59-1	Isophorone	0/19	nd	nd	µg/kg ww			40 - 70
7439-92-1	Lead	0/19	nd	nd	mg/kg ww			0.02 - 0.03
	Lipid	82/82	0.69	15.98	% ww	DU-TM28	DUWAMISH S	na

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
7439-97-6	Mercury	19/19	0.0399	0.15	mg/kg ww	DU-T1	DUWAMISH S	na
7439-97-6	Mercury					DU-T6	DUWAMISH S	
72-43-5	Methoxychlor	0/83	nd	nd	µg/kg ww			5.0 - 5.3
91-20-3	Naphthalene	0/19	nd	nd	µg/kg ww			40 - 70
98-95-3	Nitrobenzene	0/19	nd	nd	µg/kg ww			40 - 50
62-75-9	N-Nitrosodimethylamine	0/19	nd	nd	µg/kg ww			40 - 200
621-64-7	N-Nitroso-di-n-propylamine	0/19	nd	nd	µg/kg ww			40 - 50
86-30-6	N-Nitrosodiphenylamine	0/19	nd	nd	µg/kg ww			40 - 70
	PCBs (total-calc'd)[b]	72/83	16.6	159.8	µg/kg ww	DU-T14	DUWAMISH S	20 - 20
87-86-5	Pentachlorophenol	0/19	nd	nd	µg/kg ww			160 - 200
85-01-8	Phenanthrene	0/19	nd	nd	µg/kg ww			40 - 50
108-95-2	Phenol	0/19	nd	nd	µg/kg ww			40 - 70
129-00-0	Pyrene	0/19	nd	nd	µg/kg ww			40 - 50
	Total HPAH (calc'd)[c]	0/18	nd	nd	µg/kg ww			40 - 70
	Total LPAH (calc'd)[d]	0/18	nd	nd	µg/kg ww			40 - 70
	Total solids	79/79	20	35.1	% ww	DU-TM5	DUWAMISH S	na
8001-35-2	Toxaphene	0/83	nd	nd	µg/kg ww			10 - 10

na – not applicable

nd – not detected

[a] If the same detected maximum concentration was reported for more than one sample, all samples with that maximum concentration are reported.

[b] Total PCBs are calculated as the sum of the concentrations of detected Aroclors. For samples in which all individual compounds were undetected, the single highest detection limit for that sample represents the sum.

[c] HPAHs calculated using detected concentrations of fluoranthene, pyrene, benzo(a)anthracene, chrysene, total benzofluoranthenes, benzo(a)pyrene, indeno(1,2,3,-c,d)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene. For samples in which all individual compounds were undetected, the single highest detection limit for that sample represents the sum.

[d] LPAHs calculated using detected concentrations of naphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, and anthracene. For samples in which all individual compounds were undetected, the single highest detection limit for that sample represents the sum.

[e] Total DDTs calculated using detected concentrations of 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT. For samples in which all individual compounds were undetected, the single highest detection limit for that sample represents the sum.

Table D-6b. Summary statistics for adult chinook salmon whole-body samples

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
72-54-8	4,4'-DDD	14/14	2.0	6.0	µg/kg ww	63-228C,	DUWRIVES,	na
		14/14	19	43	µg/kg ww	63-248C,	DUWRIVES,	na
						63-250C	DUWRIVES	
50-29-3	4,4'-DDT	14/14	2.0	4.0	µg/kg ww	63-228C,	DUWRIVES,	na
						63-230C	DUWRIVES	
309-00-2	Aldrin	0/14	nd	nd	µg/kg ww			0.10 - 0.30
5103-71-9	alpha-Chlordane	14/14	0.50	2.0	µg/kg ww	63-227C,	DUWRIVES,	na
						63-228C,	DUWRIVES,	
						63-229C,	DUWRIVES,	
						63-230C,	DUWRIVES,	
						63-231C,	DUWRIVES,	
						63-233C	DUWRIVES	
	DDTs (total-calc'd)[c]	14/14	24	49	µg/kg ww	63-250C	DUWRIVES	na
60-57-1	Dieldrin	12/14	0.30	2.0	µg/kg ww	63-228C,	DUWRIVES,	0.30 - 0.30
						63-229C,	DUWRIVES,	
						63-230C	DUWRIVES	
58-89-9	gamma-BHC	0/14	nd	nd	µg/kg ww			0.10 - 0.40
76-44-8	Heptachlor	0/14	nd	nd	µg/kg ww			0.10 - 0.30
28655-71-2	Heptachlorobiphenyls	14/14	9.0	48	µg/kg ww	63-226C	DUWRIVES	na
118-74-1	Hexachlorobenzene	14/14	0.60	2.0	µg/kg ww	63-227C	DUWRIVES	na
						63-228C,	DUWRIVES,	
						63-229C,	DUWRIVES,	
						63-230C,	DUWRIVES,	
						63-231C,	DUWRIVES,	
						63-233C	DUWRIVES	
26601-64-9	Hexachlorobiphenyls	14/14	15	75	µg/kg ww	63-226C	DUWRIVES	na
87-68-3	Hexachlorobutadiene	0/14	nd	nd	µg/kg ww			0.10 - 0.20
53742-07-7	Nonachlorobiphenyls	13/14	0.30	1.0	µg/kg ww	63-226C	DUWRIVES	0.20 - 0.20
55722-26-4	Octachlorobiphenyls	14/14	2.0	11	µg/kg ww	63-226C	DUWRIVES	na

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
	PCB-209	6/14	0.090	0.40	µg/kg ww	63-228C	DUWRIVES	0.080 - 0.20
1336-36-3	PCBs (total)[b]	14/14	63	260	µg/kg ww	63-226C	DUWRIVES	na
25429-29-2	Pentachlorobiphenyls	14/14	22	77	µg/kg ww	63-229C	DUWRIVES	na
55880-77-8	Pentachlorobutadiene	0/14	nd	nd	µg/kg ww			0.20 - 0.40
26914-33-0	Tetrachlorobiphenyls	14/14	6.0	48	µg/kg ww	63-229C	DUWRIVES	na
58334-79-5	Tetrachlorobutadiene	0/14	nd	nd	µg/kg ww			0.30 - 0.70
25323-68-6	Trichlorobiphenyls	14/14	2.0	16	µg/kg ww	63-227C	DUWRIVES	na
	Trichlorobutadiene	0/14	nd	nd	µg/kg ww			0.20 - 0.50

na – not applicable

nd – not detected

[a] If the same detected maximum concentration was reported for more than one sample, all samples with that maximum concentration are reported.

[b] Total PCBs are calculated as the sum of the concentrations of detected Aroclors. For samples in which all individual compounds were undetected, the single highest detection limit for that sample represents the sum.

[c] Total DDTs calculated using detected concentrations of 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT. For samples in which all individual compounds were undetected, the single highest detection limit for that sample represents the sum.

Table D-6c. Summary statistics for adult coho salmon fillet samples

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
120-82-1	1,2,4-Trichlorobenzene	0/16	nd	nd	µg/kg ww			40 - 50
95-50-1	1,2-Dichlorobenzene	0/16	nd	nd	µg/kg ww			40 - 50
122-66-7	1,2-Diphenylhydrazine	0/16	nd	nd	µg/kg ww			40 - 50
541-73-1	1,3-Dichlorobenzene	0/16	nd	nd	µg/kg ww			40 - 65
106-46-7	1,4-Dichlorobenzene	0/16	nd	nd	µg/kg ww			40 - 50
95-95-4	2,4,5-Trichlorophenol	0/16	nd	nd	µg/kg ww			20 - 20
88-06-2	2,4,6-Trichlorophenol	0/16	nd	nd	µg/kg ww			40 - 65
120-83-2	2,4-Dichlorophenol	0/16	nd	nd	µg/kg ww			40 - 65
105-67-9	2,4-Dimethylphenol	0/16	nd	nd	µg/kg ww			40 - 65
51-28-5	2,4-Dinitrophenol	0/16	nd	nd	µg/kg ww			260 - 400
121-14-2	2,4-Dinitrotoluene	0/16	nd	nd	µg/kg ww			40 - 200
606-20-2	2,6-Dinitrotoluene	0/16	nd	nd	µg/kg ww			20 - 20
91-58-7	2-Chloronaphthalene	0/16	nd	nd	µg/kg ww			10 - 10
95-57-8	2-Chlorophenol	0/16	nd	nd	µg/kg ww			40 - 65
91-57-6	2-Methylnaphthalene	0/16	nd	nd	µg/kg ww			20 - 20
95-48-7	2-Methylphenol	0/16	nd	nd	µg/kg ww			40 - 50
88-74-4	2-Nitroaniline	0/16	nd	nd	µg/kg ww			40 - 200
88-75-5	2-Nitrophenol	0/16	nd	nd	µg/kg ww			40 - 50
99-09-2	3-Nitroaniline	0/16	nd	nd	µg/kg ww			80 – 300
72-54-8	4,4'-DDD	38/55	0.72	3.16	µg/kg ww	DU-XM13	DUWAMISH S	0.50 - 0.52
72-55-9	4,4'-DDE	55/55	1.9	17.4	µg/kg ww	DU-X3	DUWAMISH S	na
50-29-3	4,4'-DDT	7/55	0.64	1.4	µg/kg ww	DU-XM7	DUWAMISH S	0.52 – 2.0
534-52-1	4,6-Dinitro-o-cresol	0/16	nd	nd	µg/kg ww			200 - 300
101-55-3	4-Bromophenyl phenyl ether	0/16	nd	nd	µg/kg ww			40 - 65
59-50-7	4-Chloro-3-methylphenol	0/16	nd	nd	µg/kg ww			40 - 65
106-47-8	4-Chloroaniline	0/16	nd	nd	µg/kg ww			20 - 400
7005-72-3	4-Chlorophenyl phenyl ether	0/16	nd	nd	µg/kg ww			40 - 65
106-44-5	4-Methylphenol	0/16	nd	nd	µg/kg ww			40 - 65

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
100-01-6	4-Nitroaniline	0/16	nd	nd	µg/kg ww			80 - 300
100-02-7	4-Nitrophenol	0/16	nd	nd	µg/kg ww			400 - 540
83-32-9	Acenaphthene	0/16	nd	nd	µg/kg ww			10 - 10
208-96-8	Acenaphthylene	0/16	nd	nd	µg/kg ww			10 - 10
309-00-2	Aldrin	0/55	nd	nd	µg/kg ww			0.30 - 0.67
319-84-6	alpha-BHC	6/55	0.50	1.1	µg/kg ww	DU-X1	DUWAMISH S	0.50 - 0.52
5103-71-9	alpha-Chlordane	24/55	0.52	2.12	µg/kg ww	DU-XM9	DUWAMISH S	0.50 - 0.52
959-98-8	alpha-Endosulfan	0/55	nd	nd	µg/kg ww			0.50 - 0.67
62-53-3	Aniline	0/16	nd	nd	µg/kg ww			45 - 50
120-12-7	Anthracene	0/16	nd	nd	µg/kg ww			20 - 20
12674-11-2	Aroclor-1016	0/55	nd	nd	µg/kg ww			20 - 20
11104-28-2	Aroclor-1221	0/55	nd	nd	µg/kg ww			20 - 20
11141-16-5	Aroclor-1232	0/55	nd	nd	µg/kg ww			20 - 20
53469-21-9	Aroclor-1242	0/55	nd	nd	µg/kg ww			10 - 20
12672-29-6	Aroclor-1248	0/55	nd	nd	µg/kg ww			2.0 – 2.0
11097-69-1	Aroclor-1254	45/45	6.9	65.5	µg/kg ww	DU-XM4	DUWAMISH S	na
11096-82-5	Aroclor-1260	40/45	3.5	31.9	µg/kg ww	DU-XM4	DUWAMISH S	2.0 – 2.0
7440-38-2	Arsenic	16/16	0.41	1.6	mg/kg ww	DU-X4	DUWAMISH S	na
56-55-3	Benzo(a)anthracene	0/16	nd	nd	µg/kg ww			40 – 65
50-32-8	Benzo(a)pyrene	0/16	nd	nd	µg/kg ww			10 – 10
205-99-2	Benzo(b)fluoranthene	0/16	nd	nd	µg/kg ww			40 – 50
191-24-2	Benzo(g,h,i)perylene	0/16	nd	nd	µg/kg ww			40 – 65
207-08-9	Benzo(k)fluoranthene	0/16	nd	nd	µg/kg ww			40 – 50
65-85-0	Benzoic acid	1/16	650	650	µg/kg ww	DU-X1	DUWAMISH S	260 – 300
100-51-6	Benzyl alcohol	0/16	nd	nd	µg/kg ww			40 – 50
319-85-7	beta-BHC	0/55	nd	nd	µg/kg ww			0.67 – 1.0
33213-65-9	beta-Endosulfan	0/55	nd	nd	µg/kg ww			1.0 - 1.3
111-91-1	bis(2-chloroethoxy)methane	0/16	nd	nd	µg/kg ww			40 - 65
111-44-4	bis(2-chloroethyl)ether	0/16	nd	nd	µg/kg ww			40 - 50
117-81-7	bis(2-ethylhexyl)phthalate	4/16	170	4,750	µg/kg ww	DU-X3	DUWAMISH S	60 - 65
108-60-1	bis-chloroisopropyl ether	0/16	nd	nd	µg/kg ww			40 - 50

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
85-68-7	Butyl benzyl phthalate	0/16	nd	nd	µg/kg ww			60 - 65
86-74-8	Carbazole	0/16	nd	nd	µg/kg ww			40 - 65
218-01-9	Chrysene	0/16	nd	nd	µg/kg ww			40 - 65
7440-50-8	Copper	16/16	0.42	0.924	mg/kg ww	DU-X2	DUWAMISH S	na
360-68-9	Coprostanol	0/4	nd	nd	µg/kg ww			400 - 400
	DDTs (total-calc'd)[e]	55/55	2.63	19.81	µg/kg ww	DU-X3	DUWAMISH S	na
319-86-8	delta-BHC	0/55	nd	nd	µg/kg ww			0.50 - 0.52
53-70-3	Dibenzo(a,h)anthracene	0/16	nd	nd	µg/kg ww			40 - 65
132-64-9	Dibenzofuran	0/16	nd	nd	µg/kg ww			40 - 50
60-57-1	Dieldrin	4/55	0.53	0.65	µg/kg ww	DU-X1	DUWAMISH S	0.50 - 0.67
84-66-2	Diethyl phthalate	0/16	nd	nd	µg/kg ww			40 - 50
131-11-3	Dimethyl phthalate	0/16	nd	nd	µg/kg ww			40 - 50
84-74-2	Di-n-butyl phthalate	0/16	nd	nd	µg/kg ww			45 - 50
117-84-0	Di-n-octyl phthalate	0/16	nd	nd	µg/kg ww			10 - 10
1031-07-8	Endosulfan sulfate	0/55	nd	nd	µg/kg ww			1.0 - 1.3
72-20-8	Endrin	0/55	nd	nd	µg/kg ww			1.0 - 1.3
7421-93-4	Endrin aldehyde	0/55	nd	nd	µg/kg ww			1.0 - 6.4
206-44-0	Fluoranthene	0/16	nd	nd	µg/kg ww			20 - 20
86-73-7	Fluorene	0/16	nd	nd	µg/kg ww			40 - 50
58-89-9	gamma-BHC	0/55	nd	nd	µg/kg ww			0.50 - 0.52
5103-74-2	gamma-Chlordane	8/55	0.52	1.42	µg/kg ww	DU-XM5	DUWAMISH S	0.50 - 0.52
76-44-8	Heptachlor	0/55	nd	nd	µg/kg ww			0.50 - 0.52
1024-57-3	Heptachlor epoxide	0/55	nd	nd	µg/kg ww			0.50 - 0.52
118-74-1	Hexachlorobenzene	0/16	nd	nd	µg/kg ww			40 – 65
87-68-3	Hexachlorobutadiene	0/16	nd	nd	µg/kg ww			40 – 50
77-47-4	Hexachlorocyclopentadiene	0/16	nd	nd	µg/kg ww			166 – 200
67-72-1	Hexachloroethane	0/16	nd	nd	µg/kg ww			40 – 65
193-39-5	Indeno(1,2,3-cd)pyrene	0/16	nd	nd	µg/kg ww			40 – 67
78-59-1	Isophorone	0/16	nd	nd	µg/kg ww			40 – 65
7439-92-1	Lead	1/16	0.040	0.040	mg/kg ww	DU-X6	DUWAMISH S	0.020 - 0.030
	Lipid	36/36	0.97	6.0	%, wet wt.	DU-X3	DUWAMISH S	na

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
7439-97-6	Mercury	16/16	0.0246	0.053	mg/kg ww	DU-X5	DUWAMISH S	na
72-43-5	Methoxychlor	0/55	nd	nd	µg/kg ww			5.0 - 5.3
91-20-3	Naphthalene	0/16	nd	nd	µg/kg ww			40 - 65
98-95-3	Nitrobenzene	0/16	nd	nd	µg/kg ww			40 - 50
62-75-9	N-Nitrosodimethylamine	0/16	nd	nd	µg/kg ww			40 - 200
621-64-7	N-Nitroso-di-n-propylamine	0/16	nd	nd	µg/kg ww			40 - 50
86-30-6	N-Nitrosodiphenylamine	0/16	nd	nd	µg/kg ww			40 - 65
	PCBs (total-calc'd)[b]	45/55	7.0	97.4	µg/kg ww	DU-XM4	DUWAMISH S	20 - 20
87-86-5	Pentachlorophenol	0/16	nd	nd	µg/kg ww			160 - 200
85-01-8	Phenanthrene	0/16	nd	nd	µg/kg ww			40 - 50
108-95-2	Phenol	0/16	nd	nd	µg/kg ww			40 - 65
129-00-0	Pyrene	0/16	nd	nd	µg/kg ww			40 - 50
	Total HPAH (calc'd)[c]	0/16	nd	nd	µg/kg ww			40 - 67
	Total LPAH (calc'd)[d]	0/16	nd	nd	µg/kg ww			40 - 65
	Total solids	51/51	19.6	31	%, wet wt.	DU-X3	DUWAMISH S	na
8001-35-2	Toxaphene	0/55	nd	nd	µg/kg ww			10 - 10

na – not applicable

nd – not detected

[a] If the same detected maximum concentration was reported for more than one sample, all samples with that maximum concentration are reported.

[b] Total PCBs are calculated as the sum of the concentrations of detected Aroclors. For samples in which all individual compounds were undetected, the single highest detection limit for that sample represents the sum.

[c] HPAHs calculated using detected concentrations of fluoranthene, pyrene, benzo(a)anthracene, chrysene, total benzofluoranthenes, benzo(a)pyrene, indeno(1,2,3,-c,d)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene. For samples in which all individual compounds were undetected, the single highest detection limit for that sample represents the sum.

[d] LPAHs calculated using detected concentrations of naphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, and anthracene. For samples in which all individual compounds were undetected, the single highest detection limit for that sample represents the sum.

[e] Total DDTs calculated using detected concentrations of 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT. For samples in which all individual compounds were undetected, the single highest detection limit for that sample represents the sum.

Table D-6d. Summary statistics for English sole whole-body samples

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
7440-36-0	Antimony	0/3	nd	nd	mg/kg ww			0.02 - 0.02
12674-11-2	Aroclor-1016	0/3	nd	nd	µg/kg ww			17 - 67
11104-28-2	Aroclor-1221	0/3	nd	nd	µg/kg ww			17 - 67
11141-16-5	Aroclor-1232	0/3	nd	nd	µg/kg ww			17 - 67
53469-21-9	Aroclor-1242	0/3	nd	nd	µg/kg ww			17 - 67
12672-29-6	Aroclor-1248	3/3	20	110	µg/kg ww	L11190-19	DU-H07	na
11097-69-1	Aroclor-1254	3/3	335	1,250	µg/kg ww	L11190-19	DU-H07	na
11096-82-5	Aroclor-1260	3/3	366	946	µg/kg ww	L11190-19	DU-H07	na
7440-38-2	Arsenic	3/3	5.52	5.81	mg/kg ww	L11190-19	DU-H07	na
7440-43-9	Cadmium	0/3	nd	nd	mg/kg ww			0.0079 - 0.008
7440-47-3	Chromium	3/3	0.323	0.443	mg/kg ww	L11190-19	DU-H07	na
7440-50-8	Copper	3/3	0.379	0.415	mg/kg ww	L11190-19	DU-H07	na
7439-92-1	Lead	3/3	0.118	0.223	mg/kg ww	L11190-19	DU-H07	na
	Lipid	3/3	1.88	2.32	% ww	L11190-19	DU-H07	na
7439-97-6	Mercury	3/3	0.0602	0.0757	mg/kg ww	L11190-21	DU-H07	na
7440-02-0	Nickel	3/3	0.17	0.255	mg/kg ww	L11190-19	DU-H07	na
	PCBs (total-calc'd)[b]	3/3	721	2,306	µg/kg ww	L11190-19	DU-H07	na
7440-22-4	Silver	0/3	nd	nd	mg/kg ww			0.012 - 0.012
	Total solids	3/3	22.4	25.2	% ww	L11190-19	DU-H07	na
688-73-3	Tributyltin as ion	3/3	11.8	19	µg/kg ww	L11190-19	DU-H07	na
7440-66-6	Zinc	3/3	15.6	16.9	mg/kg ww	L11190-19	DU-H07	na

na – not applicable

nd – not detected

[a] If the same detected maximum concentration was reported for more than one sample, all samples with that maximum concentration are reported.

[b] Total PCBs are calculated as the sum of the concentrations of detected Aroclors. For samples in which all individual compounds were undetected, the single highest detection limit for that sample represents the sum.

Table D-6e. Summary statistics for English sole fillet samples

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
120-82-1	1,2,4-Trichlorobenzene	0/6	nd	nd	µg/kg ww			3.6 - 16
95-50-1	1,2-Dichlorobenzene	0/6	nd	nd	µg/kg ww			10.7 - 16
122-66-7	1,2-Diphenylhydrazine	0/6	nd	nd	µg/kg ww			3.6 - 53
541-73-1	1,3-Dichlorobenzene	0/6	nd	nd	µg/kg ww			10.7 - 16
106-46-7	1,4-Dichlorobenzene	0/6	nd	nd	µg/kg ww			10.7 - 16
95-95-4	2,4,5-Trichlorophenol	0/6	nd	nd	µg/kg ww			18 - 110
88-06-2	2,4,6-Trichlorophenol	0/6	nd	nd	µg/kg ww			18 - 110
120-83-2	2,4-Dichlorophenol	0/6	nd	nd	µg/kg ww			3.6 - 27
105-67-9	2,4-Dimethylphenol	0/6	nd	nd	µg/kg ww			3.6 - 27
51-28-5	2,4-Dinitrophenol	0/6	nd	nd	µg/kg ww			53 - 72
121-14-2	2,4-Dinitrotoluene	0/6	nd	nd	µg/kg ww			11 - 18
606-20-2	2,6-Dinitrotoluene	0/6	nd	nd	µg/kg ww			11 - 18
91-58-7	2-Chloronaphthalene	0/6	nd	nd	µg/kg ww			10.7 - 16
95-57-8	2-Chlorophenol	0/6	nd	nd	µg/kg ww			3.6 - 53
91-57-6	2-Methylnaphthalene	0/6	nd	nd	µg/kg ww			3.6 - 43
95-48-7	2-Methylphenol	0/6	nd	nd	µg/kg ww			3.6 - 27
88-74-4	2-Nitroaniline	0/6	nd	nd	µg/kg ww			7.1 - 110
88-75-5	2-Nitrophenol	0/6	nd	nd	µg/kg ww			3.6 - 27
91-94-1	3,3'-Dichlorobenzidine	0/3	nd	nd	µg/kg ww			27 - 27
99-09-2	3-Nitroaniline	0/6	nd	nd	µg/kg ww			3.6 - 110
72-54-8	4,4'-DDD	6/9	1.1	4.96	µg/kg ww	DU-SM3	DUWAMISH E	1.3 - 1.3
72-55-9	4,4'-DDE	7/9	1.1	5.94	µg/kg ww	DU-SM3	DUWAMISH E	1.0 - 1.0
50-29-3	4,4'-DDT	0/9	nd	nd	µg/kg ww			2.0 - 2.0
534-52-1	4,6-Dinitro-o-cresol	0/6	nd	nd	µg/kg ww			53 - 53
101-55-3	4-Bromophenyl phenyl ether	0/6	nd	nd	µg/kg ww			11 - 18
59-50-7	4-Chloro-3-methylphenol	0/6	nd	nd	µg/kg ww			3.6 - 53
106-47-8	4-Chloroaniline	0/6	nd	nd	µg/kg ww			36 - 53

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
7005-72-3	4-Chlorophenyl phenyl ether	0/6	nd	nd	µg/kg ww			3.6 - 16
106-44-5	4-Methylphenol	0/6	nd	nd	µg/kg ww			3.6 - 27
100-01-6	4-Nitroaniline	0/6	nd	nd	µg/kg ww			18 - 110
100-02-7	4-Nitrophenol	0/6	nd	nd	µg/kg ww			36 - 53
83-32-9	Acenaphthene	0/6	nd	nd	µg/kg ww			3.6 - 11
208-96-8	Acenaphthylene	0/6	nd	nd	µg/kg ww			3.6 - 16
309-00-2	Aldrin	0/9	nd	nd	µg/kg ww			0.5 - 0.5
319-84-6	alpha-BHC	0/9	nd	nd	µg/kg ww			0.5 - 0.5
5103-71-9	alpha-Chlordane	3/9	1.6	2.0	µg/kg ww	DU-SM3	DUWAMISH E	0.5 - 0.5
959-98-8	alpha-Endosulfan	0/9	nd	nd	µg/kg ww			0.5 - 0.5
62-53-3	Aniline	0/6	nd	nd	µg/kg ww			53 - 53.3
120-12-7	Anthracene	0/6	nd	nd	µg/kg ww			3.6 - 16
7440-36-0	Antimony	0/3	nd	nd	mg/kg ww			0.02 - 0.02
12674-11-2	Aroclor-1016	0/9	nd	nd	µg/kg ww			5.3 - 20
11104-28-2	Aroclor-1221	0/9	nd	nd	µg/kg ww			5.3 - 20
11141-16-5	Aroclor-1232	0/9	nd	nd	µg/kg ww			5.3 - 20
53469-21-9	Aroclor-1242	0/9	nd	nd	µg/kg ww			5.3 - 10
12672-29-6	Aroclor-1248	6/15	9.0	26.1	µg/kg ww	DU-SM3	DUWAMISH E	0.23 - 6.91
11097-69-1	Aroclor-1254	15/15	22	300	µg/kg ww	HH-UD-F3	HH-UD-3F	na
11096-82-5	Aroclor-1260	15/15	26.5	210	µg/kg ww	HH-UD-F3	HH-UD-3F	na
7440-38-2	Arsenic	9/9	9.0	15.1	mg/kg ww	L11190-1	DU-H07	na
92-87-5	Benzidine	0/3	nd	nd	µg/kg ww			640 - 640
56-55-3	Benzo(a)anthracene	0/6	nd	nd	µg/kg ww			10.7 - 16
50-32-8	Benzo(a)pyrene	0/6	nd	nd	µg/kg ww			3.6 - 27
205-99-2	Benzo(b)fluoranthene	0/6	nd	nd	µg/kg ww			10.7 - 43
191-24-2	Benzo(g,h,i)perylene	0/6	nd	nd	µg/kg ww			10.7 - 27
207-08-9	Benzo(k)fluoranthene	0/6	nd	nd	µg/kg ww			7.1 - 43
65-85-0	Benzoic acid	0/6	nd	nd	µg/kg ww			36 - 110

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
100-51-6	Benzyl alcohol	0/6	nd	nd	µg/kg ww			3.6 - 27
319-85-7	beta-BHC	0/9	nd	nd	µg/kg ww			0.5 - 0.5
33213-65-9	beta-Endosulfan	0/9	nd	nd	µg/kg ww			1.0 - 1.0
111-91-1	bis(2-chloroethoxy)methane	0/6	nd	nd	µg/kg ww			3.6 - 27
111-44-4	bis(2-chloroethyl)ether	0/6	nd	nd	µg/kg ww			3.6 - 16
117-81-7	bis(2-ethylhexyl)phthalate	1/6	40	40	µg/kg ww	DU-SM1A	DUWAMISH E	3.6 - 16
108-60-1	bis-chloroisopropyl ether	0/6	nd	nd	µg/kg ww			10.7 - 53
85-68-7	Butyl benzyl phthalate	0/6	nd	nd	µg/kg ww			10.7 - 16
7440-43-9	Cadmium	0/3	nd	nd	mg/kg ww			0.0079 - 0.0079
58-08-2	Caffeine	0/3	nd	nd	µg/kg ww			5.3 - 5.3
86-74-8	Carbazole	0/6	nd	nd	µg/kg ww			3.6 - 27
7440-47-3	Chromium	2/3	0.054	0.062	mg/kg ww	L11190-2	DU-H07	0.049 - 0.049
218-01-9	Chrysene	0/6	nd	nd	µg/kg ww			3.6 - 16
7440-50-8	Copper	9/9	0.175	0.37	mg/kg ww	DU-SM2A	DUWAMISH E	na
360-68-9	Coprostanol	0/6	nd	nd	µg/kg ww			110 - 180
	DDTs (total-calc'd)[e]	7/9	1.1	10.9	µg/kg ww	DU-SM3	DUWAMISH E	2.0 - 2.0
319-86-8	delta-BHC	0/9	nd	nd	µg/kg ww			0.5 - 0.5
53-70-3	Dibenzo(a,h)anthracene	0/6	nd	nd	µg/kg ww			10.7 - 43
132-64-9	Dibenzofuran	0/6	nd	nd	µg/kg ww			10.7 - 27
60-57-1	Dieldrin	0/9	nd	nd	µg/kg ww			1.0 - 1.0
84-66-2	Diethyl phthalate	0/6	nd	nd	µg/kg ww			3.6 - 27
131-11-3	Dimethyl phthalate	0/6	nd	nd	µg/kg ww			3.6 - 11
84-74-2	Di-n-butyl phthalate	1/6	20	20	µg/kg ww	DU-SM1A	DUWAMISH E	3.6 - 27
117-84-0	Di-n-octyl phthalate	0/6	nd	nd	µg/kg ww			3.6 - 16
1031-07-8	Endosulfan sulfate	0/9	nd	nd	µg/kg ww			1.0 - 1.0
72-20-8	Endrin	0/9	nd	nd	µg/kg ww			1.0 - 1.0
7421-93-4	Endrin aldehyde	0/9	nd	nd	µg/kg ww			1.0 - 1.0
206-44-0	Fluoranthene	0/6	nd	nd	µg/kg ww			3.6 - 16

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
86-73-7	Fluorene	0/6	nd	nd	µg/kg ww			3.6 - 16
58-89-9	gamma-BHC	0/9	nd	nd	µg/kg ww			0.5 - 0.5
5103-74-2	gamma-Chlordane	1/9	0.52	0.52	µg/kg ww	DU-SM3	DUWAMISH E	0.5 - 0.5
76-44-8	Heptachlor	0/9	nd	nd	µg/kg ww			0.5 - 0.5
1024-57-3	Heptachlor epoxide	0/9	nd	nd	µg/kg ww			0.5 - 0.5
118-74-1	Hexachlorobenzene	0/6	nd	nd	µg/kg ww			16 - 18
87-68-3	Hexachlorobutadiene	0/6	nd	nd	µg/kg ww			10.7 - 27
77-47-4	Hexachlorocyclopentadiene	0/6	nd	nd	µg/kg ww			27 - 36
67-72-1	Hexachloroethane	0/6	nd	nd	µg/kg ww			10.7 - 27
193-39-5	Indeno(1,2,3-cd)pyrene	0/6	nd	nd	µg/kg ww			18 - 27
78-59-1	Isophorone	0/6	nd	nd	µg/kg ww			3.6 - 27
7439-92-1	Lead	0/9	nd	nd	mg/kg ww			0.02 - 0.03
	Lipid	9/9	0.24	0.53	% ww	DU-SM2A	DUWAMISH E	na
	Lipid	3/3	9.69	11.8	% dw	du-03	du-03	na
7439-97-6	Mercury	18/18	0.0198	0.083	mg/kg ww	L11190-2	DU-H07	na
72-43-5	Methoxychlor	0/9	nd	nd	µg/kg ww			10 - 10
22967-92-6	Methylmercury	3/3	18	24.6	µg/kg ww	du-03	du-03	na
91-20-3	Naphthalene	0/6	nd	nd	µg/kg ww			3.6 - 43
7440-02-0	Nickel	0/3	nd	nd	mg/kg ww			0.02 - 0.02
98-95-3	Nitrobenzene	0/6	nd	nd	µg/kg ww			10.7 - 27
62-75-9	N-Nitrosodimethylamine	0/6	nd	nd	µg/kg ww			3.6 - 110
621-64-7	N-Nitroso-di-n-propylamine	0/6	nd	nd	µg/kg ww			3.6 - 27
86-30-6	N-Nitrosodiphenylamine	0/6	nd	nd	µg/kg ww			3.6 - 27
	PCBs (total-calc'd)[b]	15/15	78.6	526	µg/kg ww	HH-UD-F3	HH-UD-3F	na
87-86-5	Pentachlorophenol	0/6	nd	nd	µg/kg ww			27 - 36
85-01-8	Phenanthrene	0/6	nd	nd	µg/kg ww			3.6 - 16
108-95-2	Phenol	0/6	nd	nd	µg/kg ww			3.6 - 110
129-00-0	Pyrene	0/6	nd	nd	µg/kg ww			3.6 - 16
7440-22-4	Silver	0/3	nd	nd	mg/kg ww			0.012 - 0.012
	Total HPAH (calc'd)[c]	0/3	nd	nd	µg/kg ww			18 - 18
	Total LPAH (calc'd)[d]	0/3	nd	nd	µg/kg ww			3.6 - 3.6

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
	Total solids	10/10	15.4	17	% ww	DU-SM1, DU-SM1A	DUWAMISH E, DUWAMISH E	na
8001-35-2	Toxaphene	0/9	nd	nd	µg/kg ww			10 - 10
688-73-3	Tributyltin as ion	3/9	3.88	5.65	µg/kg ww	L11190-2	DU-H07	0.74 - 2
7440-66-6	Zinc	3/3	3.82	4.57	mg/kg ww	L11190-3	DU-H07	na

na – not applicable

nd – not detected

[a] If the same detected maximum concentration was reported for more than one sample, all samples with that maximum concentration are reported.

[b] Total PCBs are calculated as the sum of the concentrations of detected Aroclors. For samples in which all individual compounds were undetected, the single highest detection limit for that sample represents the sum.

[c] HPAHs calculated using detected concentrations of fluoranthene, pyrene, benzo(a)anthracene, chrysene, total benzofluoranthenes, benzo(a)pyrene, indeno(1,2,3,-c,d)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene. For samples in which all individual compounds were undetected, the single highest detection limit for that sample represents the sum.

[d] LPAHs calculated using detected concentrations of naphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, and anthracene. For samples in which all individual compounds were undetected, the single highest detection limit for that sample represents the sum.

[e] Total DDTs calculated using detected concentrations of 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT. For samples in which all individual compounds were undetected, the single highest detection limit for that sample represents the sum.

Table D-6f. Summary statistics for Dungeness and red rock crab samples (edible meat)

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
120-82-1	1,2,4-Trichlorobenzene	0/2	nd	nd	µg/kg ww			16 - 16
95-50-1	1,2-Dichlorobenzene	0/2	nd	nd	µg/kg ww			16 - 16
122-66-7	1,2-Diphenylhydrazine	0/2	nd	nd	µg/kg ww			53 - 53
541-73-1	1,3-Dichlorobenzene	0/2	nd	nd	µg/kg ww			16 - 16
106-46-7	1,4-Dichlorobenzene	0/2	nd	nd	µg/kg ww			16 - 16
95-95-4	2,4,5-Trichlorophenol	0/2	nd	nd	µg/kg ww			110 - 110
88-06-2	2,4,6-Trichlorophenol	0/2	nd	nd	µg/kg ww			110 - 110
120-83-2	2,4-Dichlorophenol	0/2	nd	nd	µg/kg ww			27 - 27
105-67-9	2,4-Dimethylphenol	0/2	nd	nd	µg/kg ww			27 - 27
51-28-5	2,4-Dinitrophenol	0/2	nd	nd	µg/kg ww			53 - 53
121-14-2	2,4-Dinitrotoluene	0/2	nd	nd	µg/kg ww			11 - 11
606-20-2	2,6-Dinitrotoluene	0/2	nd	nd	µg/kg ww			11 - 11
91-58-7	2-Chloronaphthalene	0/2	nd	nd	µg/kg ww			16 - 16
95-57-8	2-Chlorophenol	0/2	nd	nd	µg/kg ww			53 - 53
91-57-6	2-Methylnaphthalene	0/2	nd	nd	µg/kg ww			43 - 43
95-48-7	2-Methylphenol	0/2	nd	nd	µg/kg ww			27 - 27
88-74-4	2-Nitroaniline	0/2	nd	nd	µg/kg ww			110 - 110
88-75-5	2-Nitrophenol	0/2	nd	nd	µg/kg ww			27 - 27
91-94-1	3,3'-Dichlorobenzidine	0/2	nd	nd	µg/kg ww			27 - 27
99-09-2	3-Nitroaniline	0/2	nd	nd	µg/kg ww			110 - 110
534-52-1	4,6-Dinitro-o-cresol	0/2	nd	nd	µg/kg ww			53 - 53
101-55-3	4-Bromophenyl phenyl ether	0/2	nd	nd	µg/kg ww			11 - 11
59-50-7	4-Chloro-3-methylphenol	0/2	nd	nd	µg/kg ww			53 - 53
106-47-8	4-Chloroaniline	0/2	nd	nd	µg/kg ww			53 - 53
7005-72-3	4-Chlorophenyl phenyl ether	0/2	nd	nd	µg/kg ww			16 - 16
106-44-5	4-Methylphenol	0/2	nd	nd	µg/kg ww			27 - 27
100-01-6	4-Nitroaniline	0/2	nd	nd	µg/kg ww			110 - 110
100-02-7	4-Nitrophenol	0/2	nd	nd	µg/kg ww			53 - 53
83-32-9	Acenaphthene	0/2	nd	nd	µg/kg ww			11 - 11
208-96-8	Acenaphthylene	0/2	nd	nd	µg/kg ww			16 - 16
62-53-3	Aniline	0/2	nd	nd	µg/kg ww			53 - 53
120-12-7	Anthracene	0/2	nd	nd	µg/kg ww			16 - 16
7440-36-0	Antimony	0/2	nd	nd	mg/kg ww			0.02 - 0.02
12674-11-2	Aroclor-1016	0/2	nd	nd	µg/kg ww			5.3 - 5.3

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
11104-28-2	Aroclor-1221	0/2	nd	nd	µg/kg ww			5.3 - 5.3
11141-16-5	Aroclor-1232	0/2	nd	nd	µg/kg ww			5.3 - 5.3
53469-21-9	Aroclor-1242	0/2	nd	nd	µg/kg ww			5.3 - 5.3
12672-29-6	Aroclor-1248	1/6	9.0	9.0	µg/kg ww	L10913-4	DU-H07	0.21 - 5.3
11097-69-1	Aroclor-1254	6/6	28	126	µg/kg ww	L10913-4	DU-H07	na
11096-82-5	Aroclor-1260	6/6	22	67	µg/kg ww	HH-LD-C1	HH-LD-C1	na
7440-38-2	Arsenic	2/2	7.39	12.5	mg/kg ww	L10913-6	DU-H07	na
92-87-5	Benzidine	0/2	nd	nd	µg/kg ww			640 - 640
56-55-3	Benzo(a)anthracene	0/2	nd	nd	µg/kg ww			16 - 16
50-32-8	Benzo(a)pyrene	0/2	nd	nd	µg/kg ww			27 - 27
205-99-2	Benzo(b)fluoranthene	0/2	nd	nd	µg/kg ww			43 - 43
191-24-2	Benzo(g,h,i)perylene	0/2	nd	nd	µg/kg ww			27 - 27
207-08-9	Benzo(k)fluoranthene	0/2	nd	nd	µg/kg ww			43 - 43
65-85-0	Benzoic acid	0/2	nd	nd	µg/kg ww			110 - 110
100-51-6	Benzyl alcohol	0/2	nd	nd	µg/kg ww			27 - 27
111-91-1	bis(2-chloroethoxy)methane	0/2	nd	nd	µg/kg ww			27 - 27
111-44-4	bis(2-chloroethyl)ether	0/2	nd	nd	µg/kg ww			16 - 16
117-81-7	bis(2-ethylhexyl)phthalate	0/2	nd	nd	µg/kg ww			16 - 16
108-60-1	bis-chloroisopropyl ether	0/2	nd	nd	µg/kg ww			53 - 53
85-68-7	Butyl benzyl phthalate	0/2	nd	nd	µg/kg ww			16 - 16
7440-43-9	Cadmium	2/2	0.012	0.022	mg/kg ww	L10913-6	DU-H07	na
58-08-2	Caffeine	0/2	nd	nd	µg/kg ww			5.3 - 5.3
86-74-8	Carbazole	0/2	nd	nd	µg/kg ww			27 - 27
7440-47-3	Chromium	2/2	0.13	0.16	mg/kg ww	L10913-4	DU-H07	na
218-01-9	Chrysene	0/2	nd	nd	µg/kg ww			16 - 16
7440-50-8	Copper	2/2	13.4	15.8	mg/kg ww	L10913-4	DU-H07	na
360-68-9	Coprostanol	0/2	nd	nd	µg/kg ww			110 - 110
53-70-3	Dibenzo(a,h)anthracene	0/2	nd	nd	µg/kg ww			43 - 43
132-64-9	Dibenzofuran	0/2	nd	nd	µg/kg ww			27 - 27
84-66-2	Diethyl phthalate	0/2	nd	nd	µg/kg ww			27 - 27
131-11-3	Dimethyl phthalate	0/2	nd	nd	µg/kg ww			11 - 11
84-74-2	Di-n-butyl phthalate	0/2	nd	nd	µg/kg ww			27 - 27
117-84-0	Di-n-octyl phthalate	0/2	nd	nd	µg/kg ww			16 - 16
206-44-0	Fluoranthene	0/2	nd	nd	µg/kg ww			16 - 16
86-73-7	Fluorene	0/2	nd	nd	µg/kg ww			16 - 16
118-74-1	Hexachlorobenzene	0/2	nd	nd	µg/kg ww			16 - 16
87-68-3	Hexachlorobutadiene	0/2	nd	nd	µg/kg ww			27 - 27

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
77-47-4	Hexachlorocyclopentadiene	0/2	nd	nd	µg/kg ww			27 - 27
67-72-1	Hexachloroethane	0/2	nd	nd	µg/kg ww			27 - 27
193-39-5	Indeno(1,2,3-cd)pyrene	0/2	nd	nd	µg/kg ww			27 - 27
78-59-1	Isophorone	0/2	nd	nd	µg/kg ww			27 - 27
7439-92-1	Lead	2/2	0.242	0.244	mg/kg ww	L10913-4	DU-H07	na
	Lipid	2/2	1.61	2.42	% ww	L10913-6	DU-H07	na
7439-97-6	Mercury	6/6	0.05	0.111	mg/kg ww	L10913-6	DU-H07	na
91-20-3	Naphthalene	0/2	nd	nd	µg/kg ww			43 - 43
7440-02-0	Nickel	2/2	0.054	0.121	mg/kg ww	L10913-4	DU-H07	na
98-95-3	Nitrobenzene	0/2	nd	nd	µg/kg ww			27 - 27
62-75-9	N-Nitrosodimethylamine	0/2	nd	nd	µg/kg ww			110 - 110
621-64-7	N-Nitroso-di-n-propylamine	0/2	nd	nd	µg/kg ww			27 - 27
86-30-6	N-Nitrosodiphenylamine	0/2	nd	nd	µg/kg ww			27 - 27
	PCBs (total-calc'd)[b]	6/6	60	176.6	µg/kg ww	L10913-4	DU-H07	na
87-86-5	Pentachlorophenol	0/2	nd	nd	µg/kg ww			27 - 27
85-01-8	Phenanthrene	0/2	nd	nd	µg/kg ww			16 - 16
108-95-2	Phenol	0/2	nd	nd	µg/kg ww			110 - 110
129-00-0	Pyrene	0/2	nd	nd	µg/kg ww			16 - 16
7440-22-4	Silver	2/2	0.114	0.187	mg/kg ww	L10913-4	DU-H07	na
	Total solids	2/2	19.1	21.6	% ww	L10913-4	DU-H07	na
688-73-3	Tributyltin as ion	2/6	46.6	81.9	µg/kg ww	L10913-4	DU-H07	2 - 2
7440-66-6	Zinc	2/2	34.4	39.1	mg/kg ww	L10913-6	DU-H07	na
86-74-8	Carbazole	0/2	nd	nd	µg/kg ww			27 - 27

na – not applicable

nd – not detected

[a] If the same detected maximum concentration was reported for more than one sample, all samples with that maximum concentration are reported.

[b] Total PCBs are calculated as the sum of the concentrations of detected Aroclors. For samples in which all individual compounds were undetected, the single highest detection limit for that sample represents the sum.

Table D-6g. Summary statistics for striped perch fillet samples

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
12672-29-6	Aroclor-1248	0/3	nd	nd	µg/kg ww			0.34 – 0.46
11097-69-1	Aroclor-1254	3/3	76	110	µg/kg ww	HH-LD-P2 with skin	HH-LD-P2	na
11096-82-5	Aroclor-1260	3/3	80	110	µg/kg ww	HH-LD-P2 with skin	HH-LD-P2	na
7439-97-6	Mercury	3/3	0.02	0.07	mg/kg ww	HH-LD-P2 with skin	HH-LD-P2	na
	PCBs (total-calc'd)[b]	3/3	164.4	227.6	µg/kg ww	HH-LD-P2 with skin	HH-LD-P2	na
688-73-3	Tributyltin as ion	3/3	7	16	µg/kg ww	HH-LD-P5 with skin	HH-LD-P5	na

na – not applicable

nd – not detected

[a] If the same detected maximum concentration was reported for more than one sample, all samples with that maximum concentration are reported.

[b] Total PCBs are calculated as the sum of the concentrations of detected Aroclors. For samples in which all individual compounds were undetected, the single highest detection limit for that sample represents the sum.

Table D-6h. Summary statistics for whole body shiner surfperch samples

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
120-82-1	1,2,4-Trichlorobenzene	0/3	nd	nd	µg/kg ww			24 - 24
95-50-1	1,2-Dichlorobenzene	0/3	nd	nd	µg/kg ww			24 - 24
122-66-7	1,2-Diphenylhydrazine	0/3	nd	nd	µg/kg ww			80 - 80
541-73-1	1,3-Dichlorobenzene	0/3	nd	nd	µg/kg ww			24 - 24
106-46-7	1,4-Dichlorobenzene	0/3	nd	nd	µg/kg ww			24 - 24
95-95-4	2,4,5-Trichlorophenol	0/3	nd	nd	µg/kg ww			160 - 160
88-06-2	2,4,6-Trichlorophenol	0/3	nd	nd	µg/kg ww			160 - 160
120-83-2	2,4-Dichlorophenol	0/3	nd	nd	µg/kg ww			40 - 40
105-67-9	2,4-Dimethylphenol	0/3	nd	nd	µg/kg ww			40 - 40
51-28-5	2,4-Dinitrophenol	0/3	nd	nd	µg/kg ww			80 - 80
121-14-2	2,4-Dinitrotoluene	0/3	nd	nd	µg/kg ww			16 - 16
606-20-2	2,6-Dinitrotoluene	0/3	nd	nd	µg/kg ww			16 - 16
91-58-7	2-Chloronaphthalene	0/3	nd	nd	µg/kg ww			24 - 24

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
95-57-8	2-Chlorophenol	0/3	nd	nd	µg/kg ww			80 - 80
91-57-6	2-Methylnaphthalene	0/3	nd	nd	µg/kg ww			64 - 64
95-48-7	2-Methylphenol	0/3	nd	nd	µg/kg ww			40 - 40
88-74-4	2-Nitroaniline	0/3	nd	nd	µg/kg ww			160 - 160
88-75-5	2-Nitrophenol	0/3	nd	nd	µg/kg ww			40 - 40
91-94-1	3,3'-Dichlorobenzidine	0/3	nd	nd	µg/kg ww			40 - 40
99-09-2	3-Nitroaniline	0/3	nd	nd	µg/kg ww			160 - 160
534-52-1	4,6-Dinitro-o-cresol	0/3	nd	nd	µg/kg ww			80 - 80
101-55-3	4-Bromophenyl phenyl ether	0/3	nd	nd	µg/kg ww			16 - 16
59-50-7	4-Chloro-3-methylphenol	0/3	nd	nd	µg/kg ww			80 - 80
106-47-8	4-Chloroaniline	0/3	nd	nd	µg/kg ww			80 - 80
7005-72-3	4-Chlorophenyl phenyl ether	0/3	nd	nd	µg/kg ww			24 - 24
106-44-5	4-Methylphenol	0/3	nd	nd	µg/kg ww			40 - 40
100-01-6	4-Nitroaniline	0/3	nd	nd	µg/kg ww			160 - 160
100-02-7	4-Nitrophenol	0/3	nd	nd	µg/kg ww			80 - 80
83-32-9	Acenaphthene	1/3	22	22	µg/kg ww	L11094-3	DU-H07	16 - 16
208-96-8	Acenaphthylene	0/3	nd	nd	µg/kg ww			24 - 24
62-53-3	Aniline	0/3	nd	nd	µg/kg ww			80 - 80
120-12-7	Anthracene	0/3	nd	nd	µg/kg ww			24 - 24
7440-36-0	Antimony	0/3	nd	nd	mg/kg ww			0.02 - 0.02
12674-11-2	Aroclor-1016	0/3	nd	nd	µg/kg ww			8.0 - 8.0
11104-28-2	Aroclor-1221	0/3	nd	nd	µg/kg ww			8.0 - 8.0
11141-16-5	Aroclor-1232	0/3	nd	nd	µg/kg ww			8.0 - 8.0
53469-21-9	Aroclor-1242	0/3	nd	nd	µg/kg ww			8.0 - 8.0
12672-29-6	Aroclor-1248	0/3	nd	nd	µg/kg ww			8.0 - 8.0
11097-69-1	Aroclor-1254	3/3	202	369	µg/kg ww	L11094-3	DU-H07	na
11096-82-5	Aroclor-1260	3/3	150	247	µg/kg ww	L11094-3	DU-H07	na
7440-38-2	Arsenic	3/3	1.04	1.39	mg/kg ww	L11094-2	DU-H07	na
7440-38-2	Arsenic					L11094-3	DU-H07	
92-87-5	Benzidine	0/3	nd	nd	µg/kg ww			960 - 960
56-55-3	Benzo(a)anthracene	0/3	nd	nd	µg/kg ww			24 - 24

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
50-32-8	Benzo(a)pyrene	0/3	nd	nd	µg/kg ww			40 - 40
205-99-2	Benzo(b)fluoranthene	0/3	nd	nd	µg/kg ww			64 - 64
191-24-2	Benzo(g,h,i)perylene	0/3	nd	nd	µg/kg ww			40 - 40
207-08-9	Benzo(k)fluoranthene	0/3	nd	nd	µg/kg ww			64 - 64
65-85-0	Benzoic acid	3/3	742	1170	µg/kg ww	L11094-2	DU-H07	na
100-51-6	Benzyl alcohol	3/3	48	63	µg/kg ww	L11094-3	DU-H07	na
111-91-1	bis(2-chloroethoxy)methane	0/3	nd	nd	µg/kg ww			40 - 40
111-44-4	bis(2-chloroethyl)ether	0/3	nd	nd	µg/kg ww			24 - 24
117-81-7	bis(2-ethylhexyl)phthalate	0/3	nd	nd	µg/kg ww			24 - 24
108-60-1	bis-chloroisopropyl ether	0/3	nd	nd	µg/kg ww			80 - 80
85-68-7	Butyl benzyl phthalate	0/3	nd	nd	µg/kg ww			24 - 24
7440-43-9	Cadmium	3/3	0.012	0.02	mg/kg ww	L11094-1	DU-H07	na
58-08-2	Caffeine	0/3	nd	nd	µg/kg ww			8 - 8
86-74-8	Carbazole	0/3	nd	nd	µg/kg ww			40 - 40
7440-47-3	Chromium	3/3	0.25	0.289	mg/kg ww	L11094-3	DU-H07	na
218-01-9	Chrysene	0/3	nd	nd	µg/kg ww			24 - 24
7440-50-8	Copper	3/3	0.971	2.19	mg/kg ww	L11094-3	DU-H07	na
360-68-9	Coprostanol	0/3	nd	nd	µg/kg ww			160 - 160
53-70-3	Dibenzo(a,h)anthracene	0/3	nd	nd	µg/kg ww			64 - 64
132-64-9	Dibenzofuran	0/3	nd	nd	µg/kg ww			40 - 40
84-66-2	Diethyl phthalate	0/3	nd	nd	µg/kg ww			40 - 40
131-11-3	Dimethyl phthalate	0/3	nd	nd	µg/kg ww			16 - 16
84-74-2	Di-n-butyl phthalate	0/3	nd	nd	µg/kg ww			40 - 40
117-84-0	Di-n-octyl phthalate	0/3	nd	nd	µg/kg ww			24 - 24
206-44-0	Fluoranthene	0/3	nd	nd	µg/kg ww			24 - 24
86-73-7	Fluorene	0/3	nd	nd	µg/kg ww			24 - 24
118-74-1	Hexachlorobenzene	0/3	nd	nd	µg/kg ww			24 - 24
87-68-3	Hexachlorobutadiene	0/3	nd	nd	µg/kg ww			40 - 40
77-47-4	Hexachlorocyclopentadiene	0/3	nd	nd	µg/kg ww			40 - 40
67-72-1	Hexachloroethane	0/3	nd	nd	µg/kg ww			40 - 40
193-39-5	Indeno(1,2,3-cd)pyrene	0/3	nd	nd	µg/kg ww			40 - 40

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
78-59-1	Isophorone	0/3	nd	nd	µg/kg ww			40 - 40
7439-92-1	Lead	3/3	0.143	0.175	mg/kg ww	L11094-3	DU-H07	na
	Lipid	3/3	1.61	4.01	% ww	L11094-3	DU-H07	na
7439-97-6	Mercury	3/3	0.0706	0.088	mg/kg ww	L11094-1	DU-H07	na
91-20-3	Naphthalene	0/3	nd	nd	µg/kg ww			64 - 64
7440-02-0	Nickel	3/3	0.167	0.196	mg/kg ww	L11094-1	DU-H07	na
98-95-3	Nitrobenzene	0/3	nd	nd	µg/kg ww			40 - 40
62-75-9	N-Nitrosodimethylamine	0/3	nd	nd	µg/kg ww			160 - 160
621-64-7	N-Nitroso-di-n-propylamine	0/3	nd	nd	µg/kg ww			40 - 40
86-30-6	N-Nitrosodiphenylamine	0/3	nd	nd	µg/kg ww			40 - 40
	PCBs (total-calc'd)[b]	3/3	352	616	µg/kg ww	L11094-3	DU-H07	na
87-86-5	Pentachlorophenol	0/3	nd	nd	µg/kg ww			40 - 40
85-01-8	Phenanthrene	0/3	nd	nd	µg/kg ww			24 - 24
108-95-2	Phenol	0/3	nd	nd	µg/kg ww			160 - 160
129-00-0	Pyrene	0/3	nd	nd	µg/kg ww			24 - 24
7440-22-4	Silver	0/3	nd	nd	mg/kg ww			0.012 - 0.012
688-73-3	Tributyltin as ion	3/3	118	179	µg/kg ww	L11094-2	DU-H07	na
7440-66-6	Zinc	3/3	17.4	18.9	mg/kg ww	L11094-3	DU-H07	na

na – not applicable

nd – not detected

[a] If the same detected maximum concentration was reported for more than one sample, all samples with that maximum concentration are reported.

[b] Total PCBs are calculated as the sum of the concentrations of detected Aroclors. For samples in which all individual compounds were undetected, the single highest detection limit for that sample represents the sum.

Table D-6i. Summary statistics for amphipod samples

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
120-82-1	1,2,4-Trichlorobenzene	0/4	nd	nd	µg/kg ww			24 - 24
95-50-1	1,2-Dichlorobenzene	0/4	nd	nd	µg/kg ww			24 - 24
122-66-7	1,2-Diphenylhydrazine	0/4	nd	nd	µg/kg ww			80 - 80
541-73-1	1,3-Dichlorobenzene	0/4	nd	nd	µg/kg ww			24 - 24
106-46-7	1,4-Dichlorobenzene	0/4	nd	nd	µg/kg ww			24 - 24
95-95-4	2,4,5-Trichlorophenol	0/4	nd	nd	µg/kg ww			160 - 160
88-06-2	2,4,6-Trichlorophenol	0/4	nd	nd	µg/kg ww			160 - 160
120-83-2	2,4-Dichlorophenol	0/4	nd	nd	µg/kg ww			40 - 40
105-67-9	2,4-Dimethylphenol	0/4	nd	nd	µg/kg ww			40 - 40
51-28-5	2,4-Dinitrophenol	0/4	nd	nd	µg/kg ww			80 - 80
121-14-2	2,4-Dinitrotoluene	0/4	nd	nd	µg/kg ww			16 - 16
606-20-2	2,6-Dinitrotoluene	0/4	nd	nd	µg/kg ww			16 - 16
91-58-7	2-Chloronaphthalene	0/4	nd	nd	µg/kg ww			24 - 24
95-57-8	2-Chlorophenol	0/4	nd	nd	µg/kg ww			80 - 80
91-57-6	2-Methylnaphthalene	0/4	nd	nd	µg/kg ww			64 - 64
95-48-7	2-Methylphenol	0/4	nd	nd	µg/kg ww			40 - 40
88-74-4	2-Nitroaniline	0/4	nd	nd	µg/kg ww			160 - 160
88-75-5	2-Nitrophenol	0/4	nd	nd	µg/kg ww			40 - 40
91-94-1	3,3'-Dichlorobenzidine	0/4	nd	nd	µg/kg ww			40 - 40
99-09-2	3-Nitroaniline	0/4	nd	nd	µg/kg ww			160 - 160
534-52-1	4,6-Dinitro-o-cresol	0/4	nd	nd	µg/kg ww			80 - 80
101-55-3	4-Bromophenyl phenyl ether	0/4	nd	nd	µg/kg ww			16 - 16
59-50-7	4-Chloro-3-methylphenol	0/4	nd	nd	µg/kg ww			80 - 80
106-47-8	4-Chloroaniline	0/4	nd	nd	µg/kg ww			80 - 80
7005-72-3	4-Chlorophenyl phenyl ether	0/4	nd	nd	µg/kg ww			24 - 24
106-44-5	4-Methylphenol	0/4	nd	nd	µg/kg ww			40 - 40
100-01-6	4-Nitroaniline	0/4	nd	nd	µg/kg ww			160 - 160
100-02-7	4-Nitrophenol	0/4	nd	nd	µg/kg ww			80 - 80
83-32-9	Acenaphthene	0/4	nd	nd	µg/kg ww			16 - 16
208-96-8	Acenaphthylene	0/4	nd	nd	µg/kg ww			24 - 24
62-53-3	Aniline	0/4	nd	nd	µg/kg ww			80 - 80
120-12-7	Anthracene	0/4	nd	nd	µg/kg ww			24 - 24
7440-36-0	Antimony	3/4	0.024	0.069	mg/kg ww	L11193-2	West Marginal Way - Amphipods	0.023 - 0.023
12674-11-2	Aroclor-1016	0/4	nd	nd	µg/kg ww			8 - 8
11104-28-2	Aroclor-1221	0/4	nd	nd	µg/kg ww			8 - 8

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
11141-16-5	Aroclor-1232	0/4	nd	nd	µg/kg ww			8 - 8
53469-21-9	Aroclor-1242	0/4	nd	nd	µg/kg ww			8 - 8
12672-29-6	Aroclor-1248	4/4	22.5	29	µg/kg ww	L13905-2	Kellogg Island - Amphipods	na
11097-69-1	Aroclor-1254	4/4	36.3	297	µg/kg ww	L11193-2	West Marginal Way- Amphipods	na
11096-82-5	Aroclor-1260	4/4	43.1	120	µg/kg ww	L11193-1	West Marginal Way - Amphipods	na
7440-38-2	Arsenic	4/4	0.96	1.47	mg/kg ww	L11193-2	West Marginal Way- Amphipods	na
92-87-5	Benzidine	0/4	nd	nd	µg/kg ww			960 - 960
56-55-3	Benzo(a)anthracene	0/4	nd	nd	µg/kg ww			24 - 24
50-32-8	Benzo(a)pyrene	0/4	nd	nd	µg/kg ww			40 - 40
205-99-2	Benzo(b)fluoranthene	0/4	nd	nd	µg/kg ww			64 - 64
191-24-2	Benzo(g,h,i)perylene	0/4	nd	nd	µg/kg ww			40 - 40
207-08-9	Benzo(k)fluoranthene	0/4	nd	nd	µg/kg ww			64 - 64
65-85-0	Benzoic acid	0/4	nd	nd	µg/kg ww			160 - 160
100-51-6	Benzyl alcohol	0/4	nd	nd	µg/kg ww			40 - 40
111-91-1	bis(2-chloroethoxy)methane	0/4	nd	nd	µg/kg ww			40 - 40
111-44-4	bis(2-chloroethyl)ether	0/4	nd	nd	µg/kg ww			24 - 24
117-81-7	bis(2-ethylhexyl)phthalate	2/4	166	531	µg/kg ww	L11193-1	West Marginal Way - Amphipods	24 - 24
108-60-1	bis-chloroisopropyl ether	0/4	nd	nd	µg/kg ww			80 - 80
85-68-7	Butyl benzyl phthalate	0/4	nd	nd	µg/kg ww			24 - 24
7440-43-9	Cadmium	4/4	0.017	0.145	mg/kg ww	L11193-2	West Marginal Way- Amphipods	na
58-08-2	Caffeine	0/4	nd	nd	µg/kg ww			8.0 - 8.0
86-74-8	Carbazole	0/4	nd	nd	µg/kg ww			40 - 40
7440-47-3	Chromium	4/4	0.45	0.56	mg/kg ww	L13905-1	Kellogg Island - Amphipods	na
218-01-9	Chrysene	0/4	nd	nd	µg/kg ww			24 - 24
7440-50-8	Copper	4/4	9.77	29.9	mg/kg ww	L11193-2	West Marginal Way - Amphipods	na
360-68-9	Coprostanol	0/4	nd	nd	µg/kg ww			160 - 160
53-70-3	Dibenzo(a,h)anthracene	0/4	nd	nd	µg/kg ww			64 - 64
132-64-9	Dibenzofuran	0/4	nd	nd	µg/kg ww			40 - 40
1002-53-5	Dibutyltin as ion	2/2	2.07	2.83	µg/kg ww	L13905-1	Kellogg Island - Amphipods	na
84-66-2	Diethyl phthalate	0/4	nd	nd	µg/kg ww			40 - 40
131-11-3	Dimethyl phthalate	0/4	nd	nd	µg/kg ww			16 - 16
84-74-2	Di-n-butyl phthalate	0/4	nd	nd	µg/kg ww			40 - 40
117-84-0	Di-n-octyl phthalate	0/4	nd	nd	µg/kg ww			24 - 24
206-44-0	Fluoranthene	1/4	84	84	µg/kg ww	L11193-1	West Marginal Way - Amphipods	24 - 24
86-73-7	Fluorene	0/4	nd	nd	µg/kg ww			24 - 24
118-74-1	Hexachlorobenzene	0/4	nd	nd	µg/kg ww			24 - 24
87-68-3	Hexachlorobutadiene	0/4	nd	nd	µg/kg ww			40 - 40

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
77-47-4	Hexachlorocyclopentadiene	0/4	nd	nd	µg/kg ww			40 - 40
67-72-1	Hexachloroethane	0/4	nd	nd	µg/kg ww			40 - 40
193-39-5	Indeno(1,2,3-cd)pyrene	0/4	nd	nd	µg/kg ww			40 - 40
78-59-1	Isophorone	0/4	nd	nd	µg/kg ww			40 - 40
7439-92-1	Lead	4/4	0.952	7.42	mg/kg ww	L11193-2	West Marginal Way- Amphipods	na
	Lipid	4/4	0.66	5.28	% ww	L11193-2	West Marginal Way- Amphipods	na
7439-97-6	Mercury	4/4	0.0067	0.017	mg/kg ww	L11193-2	West Marginal Way - Amphipods	na
78763-54-9	Monobutyltin as ion	2/2	2.8	10.2	µg/kg ww	L13905-1	Kellogg Island - Amphipods	na
91-20-3	Naphthalene	0/4	nd	nd	µg/kg ww			64 - 64
7440-02-0	Nickel	4/4	0.479	0.771	mg/kg ww	L11193-2	West Marginal Way - Amphipods	na
98-95-3	Nitrobenzene	0/4	nd	nd	µg/kg ww			40 - 40
62-75-9	N-Nitrosodimethylamine	0/4	nd	nd	µg/kg ww			160 - 160
621-64-7	N-Nitroso-di-n-propylamine	0/4	nd	nd	µg/kg ww			40 - 40
86-30-6	N-Nitrosodiphenylamine	0/4	nd	nd	µg/kg ww			40 - 40
	PCBs (total-calc'd)[b]	4/4	106.3	408	µg/kg ww	L11193-2	West Marginal Way - Amphipods	na
87-86-5	Pentachlorophenol	0/4	nd	nd	µg/kg ww			40 - 40
85-01-8	Phenanthrene	0/4	nd	nd	µg/kg ww			24 - 24
108-95-2	Phenol	2/4	1400	2,210	µg/kg ww	L13905-2	Kellogg Island - Amphipods	160 - 160
129-00-0	Pyrene	1/4	157	157	µg/kg ww	L11193-1	West Marginal Way - Amphipods	24 - 24
7440-22-4	Silver	4/4	0.06	0.099	mg/kg ww	L11193-1	West Marginal Way- Amphipods	na
1461-25-2	Tetrabutyltin as ion	0/2	nd	nd	µg/kg ww			0.4 - 0.4
7440-28-0	Thallium	0/2	nd	nd	mg/kg ww			0.02 - 0.023
	Total solids	2/2	17.5	18.3	% ww	L14456-2	Kellogg Island - Amphipods	na
688-73-3	Tributyltin as ion	4/4	17.6	36	µg/kg ww	L11193-1	West Marginal Way- Amphipods	na
7440-66-6	Zinc	4/4	7.86	26.3	mg/kg ww	L11193-2	West Marginal Way - Amphipods	na

na – not applicable

nd – not detected

[a] If the same detected maximum concentration was reported for more than one sample, all samples with that maximum concentration are reported.

[b] Total PCBs are calculated as the sum of the concentrations of detected Aroclors. For samples in which all individual compounds were undetected, the single highest detection limit for that sample represents the sum.

Table D-6j. Summary statistics for mussel samples[2]

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
120-82-1	1,2,4-Trichlorobenzene	0/22	nd	nd	µg/kg ww			16 - 16
95-50-1	1,2-Dichlorobenzene	0/22	nd	nd	µg/kg ww			16 - 16
122-66-7	1,2-Diphenylhydrazine	0/22	nd	nd	µg/kg ww			53 - 53
541-73-1	1,3-Dichlorobenzene	0/22	nd	nd	µg/kg ww			16 - 16
106-46-7	1,4-Dichlorobenzene	0/22	nd	nd	µg/kg ww			16 - 16
95-95-4	2,4,5-Trichlorophenol	0/22	nd	nd	µg/kg ww			110 - 110
88-06-2	2,4,6-Trichlorophenol	0/22	nd	nd	µg/kg ww			110 - 110
120-83-2	2,4-Dichlorophenol	0/22	nd	nd	µg/kg ww			27 - 27
105-67-9	2,4-Dimethylphenol	0/22	nd	nd	µg/kg ww			27 - 27
51-28-5	2,4-Dinitrophenol	0/22	nd	nd	µg/kg ww			53 - 53
121-14-2	2,4-Dinitrotoluene	0/22	nd	nd	µg/kg ww			11 - 11
606-20-2	2,6-Dinitrotoluene	0/22	nd	nd	µg/kg ww			11 - 11
91-58-7	2-Chloronaphthalene	0/22	nd	nd	µg/kg ww			16 - 16
95-57-8	2-Chlorophenol	0/22	nd	nd	µg/kg ww			53 - 53
91-57-6	2-Methylnaphthalene	0/22	nd	nd	µg/kg ww			43 - 43
95-48-7	2-Methylphenol	18/22	28	93.7	µg/kg ww	L9819-15	Duwamish/Diagonal - Ambient	27 - 27
88-74-4	2-Nitroaniline	0/22	nd	nd	µg/kg ww			110 - 110
88-75-5	2-Nitrophenol	0/22	nd	nd	µg/kg ww			27 - 27
91-94-1	3,3'-Dichlorobenzidine	0/22	nd	nd	µg/kg ww			27 - 27
99-09-2	3-Nitroaniline	0/22	nd	nd	µg/kg ww			110 - 110
72-54-8	4,4'-DDD	0/11	nd	nd	µg/kg ww			1.3 - 1.3
72-55-9	4,4'-DDE	0/11	nd	nd	µg/kg ww			1.3 - 1.3
50-29-3	4,4'-DDT	0/11	nd	nd	µg/kg ww			1.3 - 1.3
534-52-1	4,6-Dinitro-o-cresol	0/22	nd	nd	µg/kg ww			53 - 53
101-55-3	4-Bromophenyl phenyl ether	0/20	nd	nd	µg/kg ww			11 - 11
59-50-7	4-Chloro-3-methylphenol	0/22	nd	nd	µg/kg ww			53 - 53
106-47-8	4-Chloroaniline	0/22	nd	nd	µg/kg ww			53 - 53
7005-72-3	4-Chlorophenyl phenyl ether	0/22	nd	nd	µg/kg ww			16 - 16
106-44-5	4-Methylphenol	0/22	nd	nd	µg/kg ww			27 - 27
100-01-6	4-Nitroaniline	0/22	nd	nd	µg/kg ww			110 - 110

[2] Caged mussels were excluded.

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
100-02-7	4-Nitrophenol	0/22	nd	nd	µg/kg ww			53 - 53
83-32-9	Acenaphthene	0/22	nd	nd	µg/kg ww			11 - 11
208-96-8	Acenaphthylene	0/22	nd	nd	µg/kg ww			16 - 16
309-00-2	Aldrin	0/11	nd	nd	µg/kg ww			1.3 - 1.3
319-84-6	alpha-BHC	0/11	nd	nd	µg/kg ww			1.3 - 1.3
959-98-8	alpha-Endosulfan	0/11	nd	nd	µg/kg ww			1.3 - 1.3
62-53-3	Aniline	0/22	nd	nd	µg/kg ww			53 - 53
120-12-7	Anthracene	0/22	nd	nd	µg/kg ww			16 - 16
7440-36-0	Antimony	0/22	nd	nd	mg/kg ww			0.01 - 0.02
12674-11-2	Aroclor-1016	0/22	nd	nd	µg/kg ww			13 - 13
11104-28-2	Aroclor-1221	0/22	nd	nd	µg/kg ww			13 - 13
11141-16-5	Aroclor-1232	0/22	nd	nd	µg/kg ww			13 - 13
53469-21-9	Aroclor-1242	0/22	nd	nd	µg/kg ww			13 - 13
12672-29-6	Aroclor-1248	0/22	nd	nd	µg/kg ww			13 - 13
11097-69-1	Aroclor-1254	18/22	16	60	µg/kg ww	L11052-47	Slip 4 - Ambient	13 - 13
11096-82-5	Aroclor-1260	0/22	nd	nd	µg/kg ww			13 - 13
7440-38-2	Arsenic	22/22	0.34	1.07	mg/kg ww	L11052-39	Brandon Street - Ambient	na
92-87-5	Benzidine	0/22	nd	nd	µg/kg ww			640 - 640
56-55-3	Benzo(a)anthracene	11/22	17	32.2	µg/kg ww	L9819-3	Brandon Street - Ambient	16 - 16
50-32-8	Benzo(a)pyrene	0/22	nd	nd	µg/kg ww			27 - 27
205-99-2	Benzo(b)fluoranthene	1/22	43	43	µg/kg ww	L9819-14	Duwamish/Diagonal - Ambient	43 - 43
191-24-2	Benzo(g,h,i)perylene	0/22	nd	nd	µg/kg ww			27 - 27
207-08-9	Benzo(k)fluoranthene	0/22	nd	nd	µg/kg ww			43 - 43
65-85-0	Benzoic acid	22/22	793	4000	µg/kg ww	L11052-47	Slip 4 - Ambient	na
100-51-6	Benzyl alcohol	1/22	28	28	µg/kg ww	L9819-2	Brandon Street - Ambient	27 - 27
319-85-7	beta-BHC	0/11	nd	nd	µg/kg ww			1.3 - 1.3
33213-65-9	beta-Endosulfan	0/11	nd	nd	µg/kg ww			1.3 - 1.3
111-91-1	bis(2-chloroethoxy)methane	0/22	nd	nd	µg/kg ww			27 - 27
111-44-4	bis(2-chloroethyl)ether	0/22	nd	nd	µg/kg ww			16 - 16
117-81-7	bis(2-ethylhexyl)phthalate	2/22	27.6	187	µg/kg ww	L11052-44	Terminal 107 - Ambient	16 - 16
108-60-1	bis-chloroisopropyl ether	0/22	nd	nd	µg/kg ww			53 - 53
85-68-7	Butyl benzyl phthalate	0/22	nd	nd	µg/kg ww			16 - 16
7440-43-9	Cadmium	22/22	0.189	0.84	mg/kg ww	L11052-36	Duwamish/Diagonal - Ambient	na
58-08-2	Caffeine	0/22	nd	nd	µg/kg ww			5.3 - 5.3

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
86-74-8	Carbazole	0/22	nd	nd	µg/kg ww			27 - 27
	Carcinogenic PAHs (calc'd)	11/22	44.79	48.208	µg/kg, ww	L9819-14	Duwamish/Diagonal - Ambient	43.7 – 43.7
57-74-9	Chlordane	0/11	nd	nd	µg/kg ww			6.7 - 6.7
7440-47-3	Chromium	21/22	0.1	0.346	mg/kg ww	L11052-37	Brandon Street - Ambient	0.05 - 0.05
218-01-9	Chrysene	11/22	19	45.8	µg/kg ww	L9819-14	Duwamish/Diagonal - Ambient	16 - 16
7440-48-4	Cobalt	11/11	0.03	0.07	mg/kg ww	L9819-33	Kellogg Island - Ambient	na
7440-48-4	Cobalt					L9819-34	Kellogg Island - Ambient	
7440-50-8	Copper	22/22	0.579	1.71	mg/kg ww	L11052-38	Brandon Street - Ambient	na
360-68-9	Coprostanol	0/22	nd	nd	µg/kg ww			110 - 110
	DDTs (total-calc'd)[c]	0/11	nd	nd	µg/kg ww			1.3 - 1.3
319-86-8	delta-BHC	0/11	nd	nd	µg/kg ww			1.3 - 1.3
53-70-3	Dibenzo(a,h)anthracene	0/22	nd	nd	µg/kg ww			43 - 43
132-64-9	Dibenzofuran	0/22	nd	nd	µg/kg ww			27 - 27
1002-53-5	Dibutyltin as ion	11/11	4.0	11.4	µg/kg ww	L9819-34	Kellogg Island - Ambient	na
60-57-1	Dieldrin	0/11	nd	nd	µg/kg ww			1.3 - 1.3
84-66-2	Diethyl phthalate	0/22	nd	nd	µg/kg ww			27 - 27
131-11-3	Dimethyl phthalate	0/22	nd	nd	µg/kg ww			11 - 11
84-74-2	Di-n-butyl phthalate	0/22	nd	nd	µg/kg ww			27 - 27
117-84-0	Di-n-octyl phthalate	0/22	nd	nd	µg/kg ww			16 - 16
1031-07-8	Endosulfan sulfate	0/11	nd	nd	µg/kg ww			1.3 - 1.3
72-20-8	Endrin	0/11	nd	nd	µg/kg ww			1.3 - 1.3
7421-93-4	Endrin aldehyde	0/11	nd	nd	µg/kg ww			1.3 - 1.3
206-44-0	Fluoranthene	21/22	17	58.3	µg/kg ww	L9819-15	Duwamish/Diagonal - Ambient	16 - 16
86-73-7	Fluorene	0/22	nd	nd	µg/kg ww			16 - 16
58-89-9	gamma-BHC	0/11	nd	nd	µg/kg ww			1.3 - 1.3
76-44-8	Heptachlor	0/11	nd	nd	µg/kg ww			1.3 - 1.3
1024-57-3	Heptachlor epoxide	0/11	nd	nd	µg/kg ww			1.3 - 1.3
118-74-1	Hexachlorobenzene	0/22	nd	nd	µg/kg ww			16 - 16
87-68-3	Hexachlorobutadiene	0/22	nd	nd	µg/kg ww			27 - 27
77-47-4	Hexachlorocyclopentadiene	0/22	nd	nd	µg/kg ww			27 - 27
67-72-1	Hexachloroethane	0/21	nd	nd	µg/kg ww			27 - 27
193-39-5	Indeno(1,2,3-cd)pyrene	0/22	nd	nd	µg/kg ww			27 - 27
78-59-1	Isophorone	0/22	nd	nd	µg/kg ww			27 - 27
7439-92-1	Lead	22/22	0.133	0.723	mg/kg ww	L11052-38	Brandon Street - Ambient	na

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Range of Detection Limits
	Lipid	21/21	0.29	2.43	% ww	L9819-2	Brandon Street - Ambient	na
7439-97-6	Mercury	21/21	0.0088	0.0228	mg/kg ww	L9819-12	Duwamish/Diagonal - Ambient	na
72-43-5	Methoxychlor	0/11	nd	nd	µg/kg ww			6.7 - 6.7
7439-98-7	Molybdenum	10/10	0.023	0.101	mg/kg ww	L9819-14	Duwamish/Diagonal - Ambient	na
78763-54-9	Monobutyltin as ion	9/11	1.75	4.91	µg/kg ww	L9819-15	Duwamish/Diagonal - Ambient	1.74 - 1.74
91-20-3	Naphthalene	0/22	nd	nd	µg/kg ww			43 - 43
7440-02-0	Nickel	22/22	0.051	0.42	mg/kg ww	L11052-37	Brandon Street - Ambient	na
98-95-3	Nitrobenzene	0/22	nd	nd	µg/kg ww			27 - 27
62-75-9	N-Nitrosodimethylamine	0/22	nd	nd	µg/kg ww			110 - 110
621-64-7	N-Nitroso-di-n-propylamine	0/22	nd	nd	µg/kg ww			27 - 27
86-30-6	N-Nitrosodiphenylamine	0/22	nd	nd	µg/kg ww			27 - 27
	PCBs (total-calc'd)[b]	18/22	16	60	µg/kg ww	L11052-47	Slip 4 - Ambient	13 - 13
87-86-5	Pentachlorophenol	0/22	nd	nd	µg/kg ww			27 - 27
85-01-8	Phenanthrene	0/22	nd	nd	µg/kg ww			16 - 16
108-95-2	Phenol	0/22	nd	nd	µg/kg ww			110 - 110
129-00-0	Pyrene	13/22	17	39.6	µg/kg ww	L9819-15	Duwamish/Diagonal - Ambient	16 - 16
7440-22-4	Silver	0/22	nd	nd	mg/kg ww			0.01 - 0.012
8001-35-2	Toxaphene	0/11	nd	nd	µg/kg ww			13 - 13
688-73-3	Tributyltin as ion	22/22	11.9	36.7	µg/kg ww	L9819-14	Duwamish/Diagonal - Ambient	na
7440-62-2	Vanadium	8/8	0.058	0.257	mg/kg ww	L9819-14	Duwamish/Diagonal - Ambient	na
7440-66-6	Zinc	22/22	16.7	44.1	mg/kg ww	L11052-36	Duwamish/Diagonal - Ambient	na

na – not applicable

nd – not detected

[a] If the same detected maximum concentration was reported for more than one sample, all samples with that maximum concentration are reported.

[b] Total PCBs are calculated as the sum of the concentrations of detected Aroclors. For samples in which all individual compounds were undetected, the single highest detection limit for that sample represents the sum.

[c] Total DDTs calculated using detected concentrations of 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT. For samples in which all individual compounds were undetected, the single highest detection limit for that sample represents the sum.

Table D-6k. Summary statistics for rockfish fillet sample

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Detection Limit
72-54-8	4,4'-DDD	1/1	4.75	4.75	µg/kg ww	DU-TM20	DUWAMISH S	na
72-55-9	4,4'-DDE	1/1	26.3	26.3	µg/kg ww	DU-TM20	DUWAMISH S	na
50-29-3	4,4'-DDT	1/1	0.67	0.67	µg/kg ww	DU-TM20	DUWAMISH S	na
309-00-2	Aldrin	nd	nd	nd	µg/kg ww			0.67
319-84-6	alpha-BHC	nd	nd	nd	µg/kg ww			0.52
5103-71-9	alpha-Chlordane	1/1	1.27	1.27	µg/kg ww	DU-TM20	DUWAMISH S	na
959-98-8	alpha-Endosulfan	nd	nd	nd	µg/kg ww			0.67
12674-11-2	Aroclor-1016	nd	nd	nd	µg/kg ww			20
11104-28-2	Aroclor-1221	nd	nd	nd	µg/kg ww			20
11141-16-5	Aroclor-1232	nd	nd	nd	µg/kg ww			20
53469-21-9	Aroclor-1242	nd	nd	nd	µg/kg ww			20
12672-29-6	Aroclor-1248	nd	nd	nd	µg/kg ww			2.0
11097-69-1	Aroclor-1254	1/1	25.1	25.1	µg/kg ww	DU-TM20	DUWAMISH S	na
11096-82-5	Aroclor-1260	1/1	18	18	µg/kg ww	DU-TM20	DUWAMISH S	na
319-85-7	beta-BHC	nd	nd	nd	µg/kg ww			0.67
33213-65-9	beta-Endosulfan	nd	nd	nd	µg/kg ww			1.3
	DDTs (total-calc'd)	1/1	31.72	31.72	µg/kg ww	DU-TM20	DUWAMISH S	na
319-86-8	delta-BHC	nd	nd	nd	µg/kg ww			0.52
60-57-1	Dieldrin	nd	nd	nd	µg/kg ww			0.67
1031-07-8	Endosulfan sulfate	nd	nd	nd	µg/kg ww			1.3
72-20-8	Endrin	nd	nd	nd	µg/kg ww			1.3
7421-93-4	Endrin aldehyde	nd	nd	nd	µg/kg ww			1.1
58-89-9	gamma-BHC	nd	nd	nd	µg/kg ww			0.52
5103-74-2	gamma-Chlordane	1/1	1.97	1.97	µg/kg ww	DU-TM20	DUWAMISH S	na
76-44-8	Heptachlor	nd	nd	nd	µg/kg ww			0.52
1024-57-3	Heptachlor epoxide	nd	nd	nd	µg/kg ww			0.52
	Lipid	1/1	2.72	2.72	% ww	DU-TM20	DUWAMISH S	na
72-43-5	Methoxychlor	nd	nd	nd	µg/kg ww			5.3

CAS Number	Chemical	Detection Frequency	Minimum Detected Conc.	Maximum Detected Conc.	Units	Sample ID of Max.[a]	Location ID of Max.[a]	Detection Limit
	PCBs (total-calc'd) [b]	1/1	43.1	43.1	µg/kg ww	DU-TM20	DUWAMISH S	na
	Total solids	1/1	24.2	24.2	% ww	DU-TM20	DUWAMISH S	na
8001-35-2	Toxaphene	nd	nd	nd	µg/kg ww			10

na – not applicable

nd – not detected

[a] If the same detected maximum concentration was reported for more than one sample, all samples with that maximum concentration are reported.

[b] Total PCBs are calculated as the sum of the concentrations of detected Aroclors. For samples in which all individual compounds were undetected, the single highest detection limit for that sample represents the sum.

Table D-7. Summary of rejected sediment data

EVENT	PARAMETER	N	REASON FOR REJECTION
Boeing SiteChar	Pentachlorophenol	53	Very low matrix spike recoveries
Duw/Diag-1	4-Chloroaniline	14	Very low matrix spike or surrogate compound recovery
	4-Nitroaniline	15	Very low matrix spike or surrogate compound recovery
	Aniline	15	Very low matrix spike or surrogate compound recovery
	Benzidine	47	Very low matrix spike or surrogate compound recovery
	Endrin aldehyde	11	Very low matrix spike or surrogate compound recovery
	Hexachlorobenzene	1	Unknown
	Hexachlorocyclopentadiene	40	Very low matrix spike or surrogate compound recovery
Duw/Diag-1.5	Benzidine	12	Very low matrix spike or surrogate compound recovery
	Hexachlorobenzene	1	Very low matrix spike or surrogate compound recovery
	Hexachlorocyclopentadiene	12	Very low matrix spike or surrogate compound recovery
Duw/Diag-2	1,2,4-Trichlorobenzene	3	Very low matrix spike or surrogate compound recovery
	1,2-Dichlorobenzene	2	Very low matrix spike or surrogate compound recovery
	1,3-Dichlorobenzene	2	Very low matrix spike or surrogate compound recovery
	1,4-Dichlorobenzene	1	Very low matrix spike or surrogate compound recovery
	Benzidine	38	Very low matrix spike or surrogate compound recovery
	Hexachlorobenzene	3	Very low matrix spike or surrogate compound recovery
	Hexachlorocyclopentadiene	14	Very low matrix spike or surrogate compound recovery
Harbor Island RI	Antimony	5	Unknown
	Cadmium	16	Unknown
	Selenium	12	Unknown
	Silver	12	Unknown
	Sulfides (total)	2	Unknown
KC WQA	1,2,4-Trichlorobenzene	1	Very low matrix spike or surrogate compound recovery
	1,2-Dichlorobenzene	1	Very low matrix spike or surrogate compound recovery
	2,4-Dimethylphenol	20	Very low matrix spike or surrogate compound recovery
	3,3'-Dichlorobenzidine	50	Very low matrix spike or surrogate compound recovery
	3-Nitroaniline	50	Very low matrix spike or surrogate compound recovery
	4-Chloroaniline	12	Very low matrix spike or surrogate compound recovery
	4-Nitroaniline	32	Very low matrix spike or surrogate compound recovery
	Aniline	12	Very low matrix spike or surrogate compound recovery
	Benzidine	56	Very low matrix spike or surrogate compound recovery
	Benzoic acid	6	Very low matrix spike or surrogate compound recovery
	Hexachlorocyclopentadiene	12	Very low matrix spike or surrogate compound recovery
Norfolk-cleanup1	4-Chloroaniline	3	Very low matrix spike or surrogate compound recovery
	4-Nitroaniline	7	Very low matrix spike or surrogate compound recovery
	Aniline	3	Very low matrix spike or surrogate compound recovery
	Benzidine	13	Very low matrix spike or surrogate compound recovery
	Benzo(a)pyrene	1	Very low matrix spike or surrogate compound recovery
	Endrin aldehyde	7	Very low matrix spike or surrogate compound recovery

EVENT	PARAMETER	N	REASON FOR REJECTION
	Hexachlorocyclopentadiene	10	Very low matrix spike or surrogate compound recovery
Norfolk-cleanup2	1,2-Dichlorobenzene	1	Very low matrix spike or surrogate compound recovery
	1,3-Dichlorobenzene	1	Very low matrix spike or surrogate compound recovery
	Benzidine	18	Very low matrix spike or surrogate compound recovery
	delta-BHC	18	Very low matrix spike or surrogate compound recovery
	Endosulfan sulfate	18	Very low matrix spike or surrogate compound recovery
	Hexachlorobenzene	1	Very low matrix spike or surrogate compound recovery
	Hexachlorocyclopentadiene	18	Very low matrix spike or surrogate compound recovery
Norfolk-monit1	2,4-Dimethylphenol	4	Very low matrix spike or surrogate compound recovery
	3,3'-Dichlorobenzidine	4	Very low matrix spike or surrogate compound recovery
	Aniline	4	Very low matrix spike or surrogate compound recovery
	Benzidine	4	Very low matrix spike or surrogate compound recovery
Norfolk-monit2a	3,3'-Dichlorobenzidine	8	Very low matrix spike or surrogate compound recovery
	4-Chloroaniline	8	Very low matrix spike or surrogate compound recovery
	Aniline	8	Very low matrix spike or surrogate compound recovery
	Benzidine	8	Very low matrix spike or surrogate compound recovery
Norfolk-monit2b	Hexachlorocyclopentadiene	2	Very low matrix spike or surrogate compound recovery
Norfolk-monit3	2,4-Dimethylphenol	8	Very low matrix spike or surrogate compound recovery
	3,3'-Dichlorobenzidine	8	Very low matrix spike or surrogate compound recovery
	4-Chloroaniline	8	Very low matrix spike or surrogate compound recovery
	Aniline	8	Very low matrix spike or surrogate compound recovery
	Benzidine	8	Very low matrix spike or surrogate compound recovery
Norfolk-monit4	Aniline	8	Very low matrix spike or surrogate compound recovery
PSAMP/NOAA98	Antimony	3	Analyzed by two methods; more appropriate result available
	Potassium	3	Analyzed by two methods; more appropriate result available
	Silver	3	Analyzed by two methods; more appropriate result available
	Thallium	3	Analyzed by two methods; more appropriate result available
Seaboard-Ph2	Antimony	20	Unknown

Appendix E: Lists of Potential Sources

INTRODUCTION

This appendix presents lists of potential sources of chemicals to the LDW derived from county, state, or federal databases.

Table E-1. Facilities with NPDES permits for discharge to the Duwamish River or LDW

FACILITY	LOCATION ADDRESS	PERMIT #	COMMENT/LOCATION
Individual Permits			
Equilon Enterprises LLC	2555 13th Ave SW	WA0001791C	Duwamish R
Tosco NW Co	2423 Lind Ave SW	WA0001945D	Duwamish R
Lafarge Corporation	5400 W Marginal Way SW	WA0002232D	Duwamish R
Duwamish Shipyard	5658 W Marginal Way SW	WA0030937B	Duwamish R
Boeing Developmental Ctr	9725 E Marginal Way S	WA0031488B	Discharge to Duwamish Waterway
Seattle CSO	999 3rd Ave Suite 700	WA0031682A	Duwamish R
General Boatyard Permits			
South Park Marina	8604 Dallas Ave S	WAG030045B	Discharge to Duwamish Waterway
Delta Marine Industries Inc	1608 S 96th St	WAG030091B	Discharge to Duwamish Waterway
General Sand and Gravel Permits			
JA Jack & Sons Inc	5427 Ohio Ave S	WAG503082B	Discharge to Duwamish R
Glacier Northwest Inc	5975 E Marginal Way S	WAG503191B	Discharge to Duwamish R
Icon Materials Inc Seattle Asphalt	1115 S 96th St	WAG503282B	Discharge to Duwamish R
Cadman Seattle	5225 E Marginal Way S	WAG503337A	Duwamish R
General Industrial Permits			
Ace Galvanizing Inc 96th	429 S 96th St	SO3000154C	Discharge to Duwamish
Aero Copters Inc	8013 Perimeter Rd S	SO3000311C	Discharges to Duwamish Waterway
Affordable Auto Wrecking	9802 Martin Luther King Jr Way S	SO3000843C	
Airco Gases Div of BOC Seattle	7700 14th Ave S	SO3001219C	NPDES WA-002902-5 discharges to Duwamish R
Alaska Marine Lines Seattle Termina	5502 + 5658 W Marginal Way SW	SO3001365C	Barge line discharges to Duwamish Waterway
All Metal Co	5610 Airport Way S	SO3000647C	Scrap metal pick up serv wholesale
American Medical Response	12856 Interurban Ave S	SO3002878B	Discharge to Duwamish R
Ameriflight Inc Hangar 5	7585 Perimeter Rd S	SO3002830B	Discharge to Duwamish R

FACILITY	LOCATION ADDRESS	PERMIT #	COMMENT/LOCATION
Associated Grocers 3301 Norfolk	3301 S Norfolk St	SO3002040C	
Aviation Fuel Storage	King County International Airport	SO3000345C	Aviation fuel storage discharges to Duwamish R
Basin Oil Co Inc Dallas Ave Sea	8661 Dallas Ave S	SO3002273C	Used oil recycling Discharge to Duwamish R 6/5/97 Certified SWPPP thru NOC submitted copy of renewal sent 8/28/00 to DOE
Birmingham Steel Terminal 105 Port	Terminal 105 4260 W Marginal Way SW	SO3002341C	Discharge to Duwamish WW
Boeing Developmental Center	9725 E Marginal Way S	SO3000146C	Transportation equipment-aircraft. discharges to Duwamish R
Boeing East Marginal Way South	3417 S 120th Pl	SO3000151C	Discharges to Duwamish/Riverton Creek
Boeing Military Flight Center	10002 E Marginal Way S	SO3000150C	Discharges to Duwamish
Boeing Plant II	7755 E Marginal Way S	SO3000482C	Discharges to Duwamish; WA 0002917 1/16/96 chdg mailing address per Joyce Nelson
Boeing Thompson Site	8770 East Marginal Way S	SO3000148C	Discharges to Duwamish 1/16/96 chdg mailing address per Joyce Nelson's request
Building Busters Inc	13001 Martin Luther King Jr Way	SO3002153C	Inspected by Devitt demolition & recycling previous owner Washington Wrecking
CB Finishing	9585 8th Ave S	SO3002274C	Discharge to Duwamish R 3/1/96 recd check for 265.00 for fees 3/4/96 called Ron Devitt to follow-up on no renewal/SWPPP
Cedar Grove Compost Webster Yard	7343 E Marginal Way S	SO3002641B	Discharge to Duwamish R
Chas A Lasater Co Seattle	515 S 96th St	SO3002285C	Discharge to Hamm Creek no inspection
Clarklift of Washington/Alaska Inc	1313 S 96th St	SO3001953C	
Custom Gear Inc	10834 E. Marginal Way S.	SO3000040C	Machine shop for gears
Engstrom Machine Works Inc	6400 S 143rd Pl	SO3002198C	Inspected By Devitt exposure of steel & drums & misc equip in yard
Evergreen Trails Inc	4500 W Marginal Way SW	SO3002966B	Discharge to Duwamish WW Start Up 5/12/97
Farwest Paint Mfg Co	4522 S. 133rd St.	SO3000863C	Discharges to Duwamish R
Fatigue Technology Inc	100 Andover Park W. Office/Ship.	SO3000891C	Fab Metal Products
Fibres International Inc 4th Av	9208 4th Ave S	SO3003598B	Discharge to storm drains formerly Browning Ferris
Fog Tite Inc	4819 W. Marginal Way S.W.	SO3000474C	Concrete mfg
Formula Corp	7901 2nd Ave S	SO3000630C	Chemical mfg discharges to Duwamish
Galvin Flying Service Inc	7149 Perimeter Rd S	SO3000607C	Fixed base oper discharges to Duwamish Waterway

FACILITY	LOCATION ADDRESS	PERMIT #	COMMENT/LOCATION
Gary Merlino Construction Office Bd	827 S Director St + 920 Barton St	SO3003120B	Discharge to N Fork Hamm Creek Wa0030929 Canceled 5/13/97 SW required now
Glacier Northwest Inc	3838 W Marginal Way SW	SO3002227C	SW permit required per John Glynn John Drabek & Ron Devitt NWRO will not pay for S&G permit dischg to Lower Duwamish R 4/5/96 denied not due to signif contributor eff 12/10/99 name chg Lone Star
Hartung Glass	17830 W Valley Hwy	SO3002146C	Inspected By Devitt insulated windows tempering glass fab glass significant exp difficult to eliminate
Industrial Automation Inc	1421 S 93rd St	SO3001949C	
James Hardie Gypsum	5931 E Marginal Way S	SO3000056C	Gypsum wallboard discharges to Duwamish WW 10/18/96 Ron did a site inspection report submitted for file
Jeld-Wen Coatings Tukwila	1061 Industry Drive	SO3003402B	Discharge to Green & Duwamish R
Jore Marine Services Terminal 115	6700 W. Marginal Way S.W.	SO3000471C	Discharges to Duwamish WW Port of Seattle Co-Permittee permit canceled no renewal 2000
Jorgensen Forge Corp	8531 E Marginal Way S	SO3003231B	Discharge to Duwamish R previous SW permit canceled had individual permit now back under SW permit only
Jorgensen Forge Corporation	8531 E Marginal Way S	SO3001196C	Forging job shop NPDES WA-003078-3i discharge to Duwamish R
Kenworth Truck Co Tuk	8801 E Marginal Way S	SO3001784C	Class 8 diesel trucks WA0030791 cancellation pending Discharge to Duwamish Pump contaminated GW to Metro per Permit No 7624
King County Int Airport Maint Shop	6518 Ellis Ave. S.	SO3000343C	Maint shop discharges to Duwamish Waterway
Laidlaw First Ave Sea	7739 1st Ave S	SO3002250C	Inspected by Ron Devitt Discharge to Duwamish R
Longview Fibre Seattle	5901 E Marginal Way S	SO3000206C	Discharge to Metro and Duwamish R
Metro South Operating Base	12100 E Marginal Way S	SO3000417C	Transit oper base maint facility St 7131 discharge to Duwamish R
Modern Pattern Works	255 S Austin St	SO3000967C	Indust pattern shop
Nicholson Mfg Co	3670 E Marginal Way S	SO3000082C	
Non Ferrous Metals	230 S Chicago St	SO3003239B	Discharge to Duwamish R and WSDOT Drain System
North Boeing Field	7700 E Marginal Way S	SO3000226C	Aircraft Mfg & Testing Discharges to Duwamish; NPDES Wa0000868
North Star Casteel	3901 9th Ave S	SO3001214C	Steel Foundry Discharges to Metro

FACILITY	LOCATION ADDRESS	PERMIT #	COMMENT/LOCATION
Northland Services	6701 Fox Ave S	SO3000962C	Marine Shipping Discharge to Duwamish R
Northland Services 8th Ave Terminal	7400 8th Ave S	SO3003646B	Discharge to Duwamish WW
Northwest Container Services Inc	6110 W Marginal Way SW Term 115	SO3003779B	Discharge to Duwamish WW Port of Seattle Co-Permittee
Northwest Grating Products	9230 4th Ave S	SO3001918C	
Pacific Utility Equipment Co	1303 S 96th St	SO3001901C	NOI submitted due to inspection by Hennekey/Pieritz Discharge Via Sto4m drains to Hamm Creek
Paco Pumps	3215 S 116th St	SO3000801C	Discharge to Duwamish R
Pioneer Industries	7000 Highland Pkwy SW	SO3001897C	Discharges to Duwamish R 1/11/96 Remailed permit to Seattle Address
Precision Engineering Inc	1231 S Director St	SO3001925C	NOI submitted due to inspection by Pieritz Discharge to Duwamish
PSF Mechanical Inc	9322 14th Ave. S.	SO3000264C	Design & Mfg HVAC systems discharge to Duwamish R
Puget Sound Coatings	9220 8th Ave S	SO3002142C	Sandblasting & painting previously excluded because of discharge to CSO has outside exposure of materials 8/15/95 Don will send letter clarifying SWPPP
Puget Sound Truck Lines Inc Sea	7303 8th Ave. S.	SO3000949C	Truck terminal discharge to Duwamish R
Rainier Cold Storage	6004 Airport Way S	SO3001507C	Discharges to E. Duwamish Waterway Port of Seattle Co-Permittee
Ryder Student Transportation Sea	130 S Kenyon St	SO3002329C	Ron Devitt inspected Discharge to Duwamish Bus Trans
Saint Gobain Containers LLC	5801 E Marginal Way S	SO3001134C	NPDES WA 0003343-3; discharges to Duwamish R 9/22/00 previously Ball Foster Glass
Seapac Service Company	6100 W Marginal Way Sw	SO3003983B	Discharge to Duwamish R
Seattle Boilerworks Inc Myrtle St	500 S Myrtle St	SO3002208C	Inspected by Ron Devitt Discharge to Duwamish R
Seattle Iron + Metals Corp	600 S Garden St	SO3003645B	Discharge to Duwamish WW
Seattle Refrigeration + Mfg Aka Avj	1057 S Director St	SO3001958C	
Seattle Tractor Parts Yard	1096 S 96th St	SO3003968B	Discharge to Duwamish R
Selland Auto Transport	615 S 96th St	SO3000650C	Discharges to Ham Creek
Shultz Distributing Inc Sea	6851 E Marginal Way S	SO3002346C	Discharge to Duwamish R no inspection done
South Recycle and Disposal Station	8100 2nd Ave. S.	SO3000737C	Permit #So3000737; Discharge to Duwamish Rvr/Elliot Bay, Puget Snd
Standard Steel Fabricating Co Inc	8155 1st Ave S	SO3000617C	Discharges to Duwamish R

FACILITY	LOCATION ADDRESS	PERMIT #	COMMENT/LOCATION
Swan Bay Holdings Dock	7100 2nd Ave SW	SO3002471C	Discharge to Duwamish R
Swift Transportation Co Inc	3600 S 124th St	SO3000290C	Trucking discharges to Duwamish formerly Inco Express Inc 9/1/99
The Chemithon Corp	5430 W. Marginal Way S.W.	SO3000033C	Sale & fab of detergent proc equip discharges to Duwamish R
The Gear Works Seattle Inc	500 S Portland St	SO3000763C	Metal machining
Tierney Elec Mfg Co	7901 7th Ave S	SO3000253C	Mfg dry type elec transformers discharges to Duwamish R
Union Pacific Railroad Co Dawson St	402 S Dawson St	SO3001155C	Railroad vehicle maint discharge to Duwamish R
United Iron Works	7421 5th Ave S	SO3002137C	Inspected By Ron Devitt & Glenn Pieritz
United Parcel Service Waboe	7575 Perimeter Rd S	SO3000434C	Discharge to Duwamish R
United Parcel Service Wasau	4329 7th Ave S	SO3000443C	Discharge to Duwamish R
United Parcel Service Wasea	4455 7th Ave S	SO3000444C	Discharge to Duwamish R
Wa DOT Aviation Division Seattle	8900 E Marginal Way S	SO3002247C	Inspected By Ron Devitt Co Permit With King Co Airport Discharge to Duwamish WW
Waste Management of Seattle Marg Wy	7201 W Marginal Way SW	SO3000581C	Solid Waste Discharge to Duwamish R
Waste Management Sea Recycle Am	7901 1st Ave S	SO3000582C	Solid waste SW to Duwamish R Frank Holert 937-7777 permit combined with So3-001114 contiguous site
West Coast Wire + Rope Rigging Inc	7777 7th Ave S	SO3002111C	Inspected by Ron Devitt & Glenn Pieritz

Source: Thomas 2002

Table E-2. Facilities in the LDW area with active pretreatment permits and discharge authorizations for releases to King County's wastewater treatment system (as of December 2002)

Facility Name	Customer Type	Address of Facility Discharge	Number and Type of Analyses performed to Date						
			Metals	pH	BOD	TSS	FOG	BNA	VOA
Alaska Marine Lines Inc.	general type	5600 W. Marginal Way S.							
Alaskan Copper Works - 6th Ave.	metal finishing - CFR 433	3200 6th Avenue South	183	221				12	27
Alaskan Copper Works - Marginal Way	metal finishing - CFR 433	3600 East Marginal Way	77	107					1
Arco Lander GWR (DA 210)	groundwater remediation - petroleum	1652 S.W. Lander South							
Arco Petroleum Products Co.	fueling facility	1652 SW Lander St.	39	22			57	9	16
Art Brass Plating, Inc.	metal finishing - CFR 433	5516 Third Avenue S.	210	273				19	32
Ash Grove Cement Company	cement/readymix	3801 E. Marginal Way South							
Aspen Paints	paint manufacturing	1128 SW Spokane Street							
Boeing - Developmental Center	manufacturing-misc	9725 East Marginal Way South	1,023	1,087	1	1		7	17
Boeing Commercial Airplane - North Field	metal finishing - CFR 433	7500 East Marginal Way	74	59			94	24	41
Boeing Company - Plant 2 Facility	manufacturing-misc	7755 East Marginal Way S	914	825	11	12	128	28	66
Boeing Integrated Defense Systems	manufacturing-misc	10000 East Marginal Way S							
Buffalo Industries, Inc	industrial laundry	99 South Spokane St	24	75	60	61	49		2
Cadman (Seattle) Inc.	cement/readymix	5225 E. Marginal Wy S							
Caliber Inspection (pka ETT X-Ray)	photo processing	7500 Perimeter Road South							
Cargill Inc. - Corn Milling Division	container washing	2 South Horton Street		6	9	9			
Eagle Marine Services, Ltd	transportation facility	3200 West Marginal Way Terminal 5							
Emerald Sanitary Services, L.L.C.	chemical toilet	7343 East Marginal Way S.	5	5			15		
Formula Corporation	chemical manufacturing	7901 2nd Ave South							
General Electric - Dawson St.	groundwater remediation - organ	221 S. Dawson St.							
George Heiser Body Company	general type	725 S. Hanford St.							
Glacier Northwest (DA #450)	cement/readymix	5975 E. Marginal Wy S.	2	2		1			

Facility Name	Customer Type	Address of Facility Discharge	Number and Type of Analyses performed to Date						
			Metals	pH	BOD	TSS	FOG	BNA	VOA
Glacier Northwest (DA #510)	cement/readymix	5900 West Marginal Way SW							
Goldstar Laundry	general type	10766 Myers Way S.							
Industrial Container Services (ICS) (pka PalEx and IFCO Systems)	barrel cleaning	7152 1st Avenue South	88	183	96	97	175	19	22
Inlet Fisheries Incorporated	food processing - seafood	5840 Airport Way South							
January Company	food processing-meats	9844-40th Ave. S.		72	75	73	56		
King County Airport-Boeing Field	transportation facility	7233 Perimeter Road							
Longview Fibre Company	corrugated container	P.O. Box 24867							
Magnetic And Penetrant Services Co.	metal finishing - CFR 433	8135 First Avenue S.	51	32			21	17	22
Marine Vacuum Service	centralized waste treatment	1516 South Graham St.	40	63	27	27	162	34	33
Mondo and Sons	food processing-meats	4225 Rainier Avenue South							
Northwest Cascade Inc.-Seattle	chemical toilet	3414 2nd Ave South							
Northwest Dyeworks Inc.	general type	4505 Airport Way South							
Overseas Casing Company Inc.	general type	601 S. Nevada St.							
Pacific Rendering Co., Inc.	rendering	4023 West Marginal Way South		49	22	22	28		
Philip Environmental Corp.- Georgetown	hazardous waste-TSD	734 S. Lucile Street	105	149	48	49	91	17	25
Pioneer Industries	metal finishing - CFR 433	7000 Highland Parkway SW	58	41				14	18
Pioneer Industries - West Marginal	machining	7440 West Marginal Way South							
Rabanco Recycling Company	solid waste - transfer fac	2733 3rd Ave. South	4	4			12		
Rainier Cold Storage and Ice - T-25 Facility	general type	3407 E. Marginal W	202	263		1			
Rainier Ice and Cold Storage	general type	6004 Airport Way South		6	9	10			
Schwartz Brothers Bakery	food processing-pies	4318 6th Ave. S.		22	24	24			
Sea Freeze Limited Partnership	general type	206 S.W. Michigan St.		12	12	12			
Seattle City Light-South Service Center	vehicle washing	3613 4th Avenue South					11		
Seattle Iron and Metals	vehicle washing	600 S. Garden St							
Seattle Public Utilities-8th Ave SW	decant station	8th Ave SW	2	2			3		

Facility Name	Customer Type	Address of Facility Discharge	Number and Type of Analyses performed to Date						
			Metals	pH	BOD	TSS	FOG	BNA	VOA
Seattle Soild Waste-South Transfer Facility	solid waste - transfer facility	8100 Second Ave South							
Select Fish	food processing - seafood	5980 First Avenue South							
St. Gobain Containers L.L.C.	glass manufacturing	5801 E. Marginal Way S.		1	1	1	57		
Stoneway Concrete - South Seattle Ready Mix Bat	cement/readymix	3803 E. Marginal Way							
Todd Pacific Shipyards Corporation	boat/shipyard	1801 16th Ave. S.W.							
U.S. Postal Office - Westwood Station	groundwater remediation - petroleum	2721 Sw Trenton							
Union Pacific Railroad-Argo Remediation	groundwater remediation - petroleum	4300 Colorado Ave. S.	1	1					
Viox Corp.	glass manufacturing	6701 6th South	194	289	2	3	1	10	28
Washington Federal Savings and Loan Association	groundwater remediation - petroleum	SW Hudson & W. Marginal Wy SW							
Waste Management, Inc. - Alaska Street Facility	solid waste - transfer facility	70 S. Alaska Street							

Table E-3. Businesses in the LDW area on Ecology's list of Confirmed and Suspected Contaminated Sites, with site status and types of contaminants

Note: This list is used by Ecology for initial screening purposes to determine whether a site needs consideration. Once a site is added to the list, information is not updated if new data become available. For this reason, the table is not a reliable indicator of the type of contaminant at a particular site. Site-specific reports should be referred to for correct, updated information on each site. This list was last updated by Ecology in November 2002.

Company Name	Address	Ecology Status	Independent Site Status	WARM Bin	Affected Media	Affected Media Status	Type of Contaminant												
							Base/Neutral/Acid Organic Compounds	Halogenated Organic Compounds	EPA Priority Metals	Non-Priority Metals	PCBs	Pesticides	Petroleum Products	Phenols	Non-Halogenated Organic Compounds	Dioxins	PAHs
Ace Galvanizing Inc	429 S 96th	2		4	1	C			C				C				
		2		4	4	C			C				C				
Ace Radiator	311 S Brandon St	1			4	C		S	S				C		S		
		1			3	S		S									
		1			1	S		S	S				S		S		
		1			2	S		S	S				S		S		
Advance Electroplating	9585 8th Ave S	2		5	1	C		C	C								
		2		5	4	C		C	C								
		2		5	2	S			C								
		2		5	5	S			S								
		2		5	3	S		C									
Air National	7277 Perimeter Rd S 215	4	2		1	S							S		S		
	Main T	4	2		4	S							S		S		
Asahipen America Inc	1128 SW Spokane St	4	3		1	S									S		
		4	3		4	S									S		
Big Johns Truck Repair Inc	6533 3rd Ave S	4	2		1	C									C		
		4	2		4	C							C				
Birmingham Steel Corp	2424 SW Andover St	1			1	C		C	C	C			C				C
		1			5	C		C	C	C	C		C				C
		1			2	C		S	C	C	S		C	C	C		C

Company Name	Address	Ecology Status	Independent Site Status	WARM BIN	Affected Media	Affected Media Status	Type of Contaminant											
							Base/Neutral/Acid Organic Compounds	Halogenated Organic Compounds	EPA Priority Metals	Non-Priority Metals	PCBs	Pesticides	Petroleum Products	Phenols	Non-Halogenated Organic Compounds	Dioxins	PAHs
		1			4	C	S	C	C	C	C		C	S	C		C
BOC Gases 14th Ave	7700 14th Ave S	4	2		1	C			C				S				
		4	2		4	C			C				S				
		4	2		2	S			S				S				
		4	2		3	S			S				S				
		4	2		5	S			S				S				
Boeing A&M Developmental Center	9725 E Marginal Way S	4	2		1	C		C	S				C		C		
		4	2		4	C		C	S				C		C		
		4	2		2	S		S	S				S		S		
		4	2		3	S		S	S				S		S		
		4	2		5	S		S	S				S		S		
Boeing A&M Electronic Mfg Facility	7355 Perimeter Rd S	1			1	C		C									
		1			4	S		S									
Boeing Electronic MFG	7300 Perimeter Rd S	4	2		4	C											C
Boeing Isaacson Property	8625 E Marginal Way	4	3		1	C			C								
		4	3		4	C			C								
		1			4	C				C							
		1			1	S				S							
Boeing North Field	7370 E Marginal Way S	4	2	5	1	C		C	C	S	C		C		C	S	
		4	2	5	5	C		C	C	S	C		C		C	S	
		4	2	5	4	C		C	C	S	S		C		C	S	
		4	2	5	2	S		S	S	S	S		S		S	S	
Boeing North Field	Ellis Ave & E Marginal Way	1			1	C							C				
		1			4	C							C				
Boeing Plant 2	7755 E Marginal Way S	4	2	1	2	C							C				
		4	2	1	1	C		C	C		C		C		C		C
		4	2	1	4	C		C	C		C		C		C		C
		4	2	1	3	C		C	S				C				C
		4	2	1	5	S		S	S		S		S		S		S
Brys Auto Wrecking	4025 W Marginal Way SW	4	3	3	4	C			C				C				
		4	3	3	1	S			S				S				

Company Name	Address	Ecology Status	Independent Site Status	WARM BIN	Affected Media	Affected Media Status	Type of Contaminant												
							Base/Neutral/Acid Organic Compounds	Halogenated Organic Compounds	EPA Priority Metals	Non-Priority Metals	PCBs	Pesticides	Petroleum Products	Phenols	Non-Halogenated Organic Compounds	Dioxins	PAHs
		4	3	3	3	S			S				S				
		4	3	3	5	S			S				S				
Burlington Environmental Inc George	734 S Lucile St	1			1	S			S	S		S	S		S		
		1			4	S			S	S		S	S		S		
Cascade Columbia	6900 Fox Ave S	3		1	1	C		C					C		C		C
		3		1	4	C		C					C		C		C
Central Painting	4749 W Marginal Way SW	2		2	1	C		C									
		2		2	4	R			R						R		
Chevron Seattle Terminal 4097	4525 Diagonal Ave S	4	2		4	C			C		S		C		C		
		4	2		1	C			C		S		S		S		
		4	2		2	S			S		S		S		S		
		4	2		5	S			S		S		S		S		
City Commerce Park	4115 1st Ave S	4	3		4	C		C									
		4	3		1	C		C					C				
Clayton VW Repair	4709 Martin Luther King Wy S	4	2		4	C							C				
		4	2		2	S							S				
		4	2		3	S							S				
Consolidated Freightways Seattle	6050 E Marginal Way S	4	2		4	C							C				
		4	2		1	C							C		S		S
Dakota Street	4101 W Marginal Way	4	3		4	C							C				
Delridge ARCO AM PM	7301 Delridge Way SW	4			4	C							C				
Duwamish Marine Center	6365 1st Ave S	4	3		1	C							C		C		S
		4	3		4	C	C		C	C	C		C		S		C
Duwamish River Boeing PLT 2	7700 E Marginal Way	1			2	S			S								
		1			5	S			S								
Duwamish River Slip 4	Slip 4 Duwamish River	1			5	C	C				C						C
Duwamish Shipyard, Inc	5658 W Marginal Wy SW	4	2		1	C							C				
		4	2		4	C	C		R				C		C		C
		4	2		2	S							S				
		4	2		5	S	S	S	S	S		S	S		S		

Company Name	Address	Ecology Status	Independent Site Status	WARM BIN	Affected Media	Affected Media Status	Type of Contaminant												
							Base/Neutral/Acid Organic Compounds	Halogenated Organic Compounds	EPA Priority Metals	Non-Priority Metals	PCBs	Pesticides	Petroleum Products	Phenols	Non-Halogenated Organic Compounds	Dioxins	PAHs
E & E Foods Bldgs.	3922 6th Ave S	4	3		4	C			C				C				
Eastern Supply Co	7745 1st Ave S	3		2	1	C		C									
		3		2	4	C		C									
Emerald Petroleum Services Inc	1500 Airport Wy S	1			1	S											
		1			4	S											
Emerald Tool Inc	6332 6th S	2		5	4	C		C	C						S		
		2		5	1	S		S	S						S		
Everclean Inc dba Gas N Wash	551 S Michigan St	4	3		1	C							C				
		4	3		4	R							R				
Federal Express Corp BFIA	651 S Alaska St	4	3		4	C				C	B		C				
		4	3		1	C			C	C			B				
First Ave Bridge Landfill	7700 Block Of 2nd Ave SW	1			3	C											
		1			4	C											
		1			5	S											
Foss Environmental Svcs Co	200 SW Michigan St	4	3		4	C							C				
Franks Used Cars	6305 E Marginal Way S	4	2		4	C		S	C		C		C		S		
		4	2		2	C		S	S		S		C		S		
		4	2		3	S		S					S		S		
		4	2		5	S		S	S				S		S		
		4	2		1	S		S	S		S		S		S		
General Electric Aviation Div	220 S Dawson St	3		2	1	C	C	C					C				
		3		2	4	C	C	C					C				
Georgetown Center	NW Corner Of Corson Ave S & S Michigan	4	2		1	C							C		C		
		4	2		4	C							C		C		

Company Name	Address	Ecology Status	Independent Site Status	WARM BIN	Affected Media	Affected Media Status	Type of Contaminant												
							Base/Neutral/Acid Organic Compounds	Halogenated Organic Compounds	EPA Priority Metals	Non-Priority Metals	PCBs	Pesticides	Petroleum Products	Phenols	Non-Halogenated Organic Compounds	Dioxins	PAHs
Glacier Northwest Seattle Terminal	5900 W Marginal Way S	2		1	2	C			C				S	C			
		2		1	4	C			C				S	C			
		2		1	5	C			C				S	S			
		2		1	1	C		S	C				S	C			
Interstate Coatings	754 S Chicago	2		3	4	C		S	C				C		S		
		2		3	1	S		S	S				S		S		
		2		3	2	S		S	S				S		S		
		2		3	3	S		S	S				S		S		
James Hardie Gypsum	5931 E Marginal Wy S	4	2		1	C			C								
		4	2		4	C			C								
Jorgensen Forge Corp	8531 E Marginal Way S	4	2	5	1	C					S				C		
		4	2	5	4	C			S				C		C		
Kelly Moore Preservative Paint Co	5410 Airport Way S	2		5	1	C		S	S				S		C		
		2		5	4	C		S	S				S		C		
Kenworth Truck Co	8801 E Marginal Way S	4	2		4	C		C	S				C	C	C		
		4	2		1	C		C	S				C	S	C		
		4	2		2	S		S	S				S	S	S		
		4	2		5	S		S	S				S	S	S		
King Cnty DOT Metro Transit Div Dearborn	802 S Dearborn St	3		3	4	C		C	S				C		C		
		3		3	1	C		C	S				C		S		
Laidlaw	7739 1st Ave S	4	3	4	1	C		C					C				
		4	3	4	4	R		R					R				
Long Painting Co 10th Ave	8025 10th Ave S	4	2		2	S			S	S			S				
		4	2		5	S			S	S			S				
		4	2		4	S			S	S			S		S		
Longview Fibre Co	5901 E Marginal Wy S	4		5	4	C							C				C
		4		5	1	C	C						C				C
		4		5	2	C	C						C				C
		4		5	3	C	C						C				C
Lower Duwamish Waterway	Lower Duwamish Waterway	3		0	5	C	C	C	C	C	C			C			C

Company Name	Address	Ecology Status	Independent Site Status	WARM BIN	Affected Media	Affected Media Status	Type of Contaminant												
							Base/Neutral/Acid Organic Compounds	Halogenated Organic Compounds	EPA Priority Metals	Non-Priority Metals	PCBs	Pesticides	Petroleum Products	Phenols	Non-Halogenated Organic Compounds	Dioxins	PAHs		
M & T Chemicals Inc.	6000 W Marginal SW	2		5	1	S			S	S									
		2		5	4	S			S	S									
		2		5	5	S			S	S									
Manitowak Western	8250 5th Ave S	1			1	S			S				S						
		1			4	S			S				S						
Marine Vacuum Service Inc	1516 S Graham St	2		3	1	C			C				C						
		2		3	3	C			C				C						
		2		3	2	C			C				C						
		2		3	4	C			C				C						
Markey Property Parcel 4	Parcel 4 S 96th St &10th Ave S	4		3	2	C			C										
		4		3	4	C			C										
		4		3	1	C			C										
		4		3	5	S			C		C		C						
		4		3	3	S			S										
McFarland Property	SW Edmunds St & 15th Av SW	4	2		4	C			C										
Metro Central Operating Base	1333 Airport Wy S	1			4	C			S				C						
		1			1	S			S				S						
		1			2	S			S				S						
		1			5	S			S				S						
Myrtle Street Property	606 S Myrtle St	4	2		1	C							C						
		4	2		4	C							C						
North Coast Chemical Co.	6300 17th Av S	4	1		1	C		C	S				C		S				
		4	1		4	C		C	S				C		S				
		4	1		2	C		S	S				S		S				
Northwest Cooperage Co, Inc.	7152 1st Ave S	2		4	1	C		C	C			C	C	C	C				
		2		4	4	C		C	C	C		C		C	C			C	
		2		4	5	C		C	C	C	C			C	C				
		2		4	2	C		S	C	S					S				
Northwest Environservice 2	8105 1st Ave S	4	2		2	S		S	S				S		S				
		4	2		4	S		S	S				S		S				

Company Name	Address	Ecology Status	Independent Site Status	WARM BIN	Affected Media	Affected Media Status	Type of Contaminant											
							Base/Neutral/Acid Organic Compounds	Halogenated Organic Compounds	EPA Priority Metals	Non-Priority Metals	PCBs	Pesticides	Petroleum Products	Phenols	Non-Halogenated Organic Compounds	Dioxins	PAHs
Northwest Environservice 2W	1st Av SW & Marginal	4	2		5	C		C	C				C		C		
		4	2		2	S		S	S				S		S		
		4	2		4	S		S	S				S		S		
Northwest Plating	825 S Dakota St	4	2		1	C		C	C								
		4	2		4	C		C	C								
Pioneer Enamel Manufacture	5531 Airport Way S	2		5	4	C			C								
		2		5	1	S			S								
		2		5	2	S			S								
Port of Seattle Leckenby Co.	11th Ave SW Terminal 18d	1			4	S			S	S	S						
Port of Seattle Terminal 106W	3629 Duwamish Av S	4	2		4	C		C	B				C				S
		4	2		1	S		S					S				S
		4	2		2	S		S					S				S
Puget Park	16th Av SW	4	2		1	S			S								
		4	2		2	S			S								
		4	2		4	S			S								
Rainier Brewery	3100 Airport Way S	4	3		1	C							C				
		4	3		4	R							R				
Rhodia Inc	9229 E Marginal Wy S	1			4	C			C								
	Rhodia	1			1	C			C								
Rowe Property	3848 22nd Av SW	1			4	C			C	S							
Ryder Student Transportation Services	130 S Kenyon St	4	3		4	C							C				
S 96th St Ditch	S 96th St & Duwamish River	1			4	C		S	C	C	S	S	C	S	S	S	C
		1			5	C		S	C	C	S	S	C	S	S	S	C
		1			3	S		S	S	S		S	S	S	S		S
		1			1	S		S	S	S	S	S	S	S	S	S	S
		1			2	S		S	S	S	S	S	S	S	S	S	S

Company Name	Address	Ecology Status	Independent Site Status	WARM Bin	Affected Media	Affected Media Status	Type of Contaminant												
							Base/Neutral/Acid Organic Compounds	Halogenated Organic Compounds	EPA Priority Metals	Non-Priority Metals	PCBs	Pesticides	Petroleum Products	Phenols	Non-Halogenated Organic Compounds	Dioxins	PAHs
Sahlberg Equipment	5950 4th Ave S	4	2		1	C		C					C				
		4	2		4	R							R				
		4	2		2	S		S					S				
Samis Land Co Site	647 S Alaska St	2		5	4	C		S	S	S			C		C		
		2		5	1	S		S	S	S			S		S		
		2		5	3	S		S	S	S			S		S		
Scougal Rubber Corp	6239 Corson Ave S	4	3		1	C		C					C		C		
		4	3		4	C		C					C		C		
Seafirst Bank Central Svcs	4201 W Marginal Way SW	4	2		1	C							C				
		4	2		4	C							C				
Seattle Barrel & Cooperage	7th Av S & S Snoqualmie St	2		4	4	C		S	C				C		C		
		2		4	3	S		S	S								
		2		4	1	S		S	S				S		S		
		2		4	2	S		S	S				S		S		
		2		4	5	S		S	S				S		S		
Seattle City Light 4th Ave S	3814 4th Ave S	1			1	C	C	C	C	C			C		C		C
		1			4	C	C	S	C	C	S		C		S		C
Seattle City Light MRWF	3613 4th Av S	2		5	1	C					S		C			S	
		2		5	4	C					S		C			S	
		2		5	3	S					S					S	
Seattle City Light Steamplant Georgetown	6700 13th Ave S	2		5	4	C					S		C				
		2		5	5	S					S						
		2		5	1	S					S		S				
Seattle Commerce Center	Delridge Way SW & Andover SW	4	2		1	C			C						C		
		4	2		4	C			C				S		S		
Seattle Port Dallas Ave	8700 Dallas Ave S	3		1	2	C	C		C		C						C
		3		1	4	C	C		C		C	C				C	C
		3		1	1	C	C		C		C	C	C				C
		3		1	5	S			S								
		3		1	3	S		S							S		

Company Name	Address	Ecology Status	Independent Site Status	WARM BIN	Affected Media	Affected Media Status	Type of Contaminant												
							Base/Neutral/Acid Organic Compounds	Halogenated Organic Compounds	EPA Priority Metals	Non-Priority Metals	PCBs	Pesticides	Petroleum Products	Phenols	Non-Halogenated Organic Compounds	Dioxins	PAHs
Seattle S Transfer Sta	8100 2nd Av S	4	1		1	S											
		4	1		2	S											
		4	1		4	S											
Selland Auto Transport	615 S 96th St	4	2		1	C							C				
		4	2		4	C							C				
Southpark Landfill	8200 2nd Ave S	4	2		4	C	C	C	C		C	C	C	C	C		C
		4	2		1	C	C	C	C	C	C	C	C		C		C
		4	2		2	C	C	S	C		S	S	S				S
Spear Trusts WHSE	4001 6th Av S	2		5	4	C			C				C		C		
		2		5	1	C			S				C		S		
		2		5	5	S			S				S		S		
Spencer Industries Inc	8410 Dallas Ave S	4	2		4	B		B									
		4	2		1	C		C									
Spic N Span Cleaners Corp Inc	652 S Dearborn St	4	3		1	C		C					C				
		4	3		4	C		C					C				
Sternoff Metals	7201 E Marginal Wy S	4		5	4	C			C		C						
		4		5	1	C			C		C		C				
		4		5	2	S			S		S						
Sylvan Way Land Co Sand Pit	7001 Sylvan Way SW	4	2		4	C			C				C				
ToxGon Corp Seattle	631 S 96th St	1			1	S		S	S					S	S		S
		1			2	S		S	S					S	S		S
		1			4	S		S	S					S	S		S
		1			5	S		S	S					S	S		S
UPRR Diagonal Ave S Spur	60 Diagonal Ave S	3			1	C			S	S			C				C
		3			4	C			S	S			C				C
		3			3	S							S				S
		3			2	S			S	S			S				S
Viox McDowell Site	551 S River St	4	2	5	4	C			C								
Vopak USA Inc 1st Ave S	4000 1st Ave S	4	2		4	C		C	S				C	S	S		
		4	2		1	C		C	S				S	S	C		

Company Name	Address	Ecology Status	Independent Site Status	WARM BIN	Affected Media	Affected Media Status	Type of Contaminant												
							Base/Neutral/Acid Organic Compounds	Halogenated Organic Compounds	EPA Priority Metals	Non-Priority Metals	PCBs	Pesticides	Petroleum Products	Phenols	Non-Halogenated Organic Compounds	Dioxins	PAHs
WA Air National Guard Boeing N Field Sea	6736 Ellis Ave S	4	2		1	C											
		4	2		4	C			C				C				
Washington Trucking Assoc	4101 4th Ave S	4	3		4	C					C		S				
Waste Management of Seattle	7201 W Marginal Way SW	2		5	4	C			C				S				
		2		5	1	S			S				S				
		2		5	2	S			S				S				
		2		5	5	S			S				S				
West Coast Equipment 2	7746 Detroit Av SW	4	2	3	1	C			C				C				
		4	2	3	4	C			C				C				
West Coast Equipment, Inc	7777 Detroit Av SW	1			4	C		S					C		S		
		1			1	S		S					S		S		
		1			2	S		S					S		S		
		1			5	S		S					S		S		

Source: Ecology 2002a

Codes used in Table E-3

Ecology Status - Indicates the current status of sites relative to the MTCA cleanup process. Code choices are:

1 Awaiting Site Hazard Assessment (SHA)

2 Ranked, Awaiting Remedial Action (RA)

3 Remedial Action in progress

4 Independent Remedial Action

5 Construction Completed, Operation & Maintenance Underway

6 RA Completed, Confirmational Monitoring Underway

7 RA Conducted, residual contamination left on site; ongoing institutional controls required

8 RA and all activities completed (no monitoring)

Independent Site Status - This column only applies to those sites undergoing an independent cleanup. Code choices are:

1 Release report received, awaiting assessment by PLP (Potentially Liable Person)

2 Independent Site Assessment or Interim RA Report received

3 Final Independent RA Report received

WARM BIN - Indicates the outcome of the Washington Ranking Model (WARM). The result of the WARM ranking will be a number between 1 and 5. A result of 1 indicates the greatest assessed risk to human health and to the environment. A result of 5 indicates the lowest assessed risk. A zero indicates the site is on the federal National Priorities List (NPL) and went through the federal Hazard Ranking System (HRS) rather than the state WARM ranking. A blank indicates the site hasn't been ranked.

Affected Media - For each site, there may be contaminant information for up to six environmental media: Groundwater, surface water, air, soil, sediment or drinking water. Affected Media Codes are:

1 = Groundwater

2 = Surface Water

3 = Air

4 = Soil

5 = Sediments

6 = Drinking Water

Affected Media Status - The media status column and the numbered contaminant type columns may be coded:

C (Confirmed) - The presence of hazardous substances above MTCA cleanup levels has been confirmed by laboratory analysis (or by field determination in the case of petroleum contamination).

B (Below) - The presence of hazardous substances below MTCA cleanup levels has been confirmed by laboratory analysis (or field determination in the case of petroleum products). The B code may only be applied following completion of analytical work in conjunction with a Site Hazard Assessment (SHA) or Remedial Investigation/Feasibility Study (RI/FS).

S (Suspected) - Due to preliminary investigations and/or the nature of business operations or manufacturing processes, certain contaminants are suspected to be present at the site.

R (Remediated) - Contaminants have been treated, removed, or contained to meet cleanup levels established for the site. (This status determination may only be made by Ecology.)

Table E-4. Industries in the LDW area that filed TRI reports in 1999 for contaminants released to the air

INDUSTRY	CONTAMINANT	QUANTITY RELEASED (lb/yr)
Ace Galvanizing Inc - Seattle	Zinc compounds	1,500
Arco Products Company - Seattle	1,2,4-trimethylbenzene	35
Art Brass Plating Inc - Seattle	Trichloroethylene	12,300
Ball Foster Glass Container Co -Seattle	Chromium compounds	5
Birmingham Steel Corp - Seattle	Chromium compounds	0
	Lead compounds	1,646
	Manganese compounds	2,201
	Nickel compounds	17
	Zinc compounds	21,827
Boeing Commercial Airplane Group - Seattle	Diethanolamine	1,950
	Glycol ethers	2,550
	Methyl ethyl ketone	42,250
	Methyl isobutyl ketone	5,850
	Naphthalene	5,600
Capital Industries Inc. – Seattle	Methyl isobutyl ketone	13.533
Duwamish Shipyard Inc. – Seattle	Xylene (mixed isomers)	10,800
Equilon Lubricants – Seattle	Ethylbenzene	5
	Xylene (mixed isomers)	5
Equilon Terminal – Seattle	1,2,4-Trimethylbenzene	500
	Benzene	500
	Ethylbenzene	500
	N-hexane	1,500
	Toluene	1,500
	Xylene (mixed isomers)	500
Fisher Mills Inc – Seattle		
Formula Corp – Seattle	Glycol ethers	750
Great Western Chemical Company – Seattle	Methanol	250
Hussmann Corporation – Seattle	1,1-Dichloro-1-fluoroethane	2,032
Industrial Plating Corp – Seattle	Copper compounds	264
	Zinc compounds	325
Machinists Dsr, Inc. – Seattle	Methyl ethyl ketone	18,400
	Xylene (mixed isomers)	21,769
Modine Aftermarket Holdings – Seattle	Copper	1
Non-Ferrous Metals Inc – Seattle	Lead	255
Paccar, Seattle-Tukwila	Ethylene glycol	14
	Methyl ethyl ketone	35,237
	Toluene	41,088
	Xylene (mixed isomers)	8,020
Romac Ind Inc – Seattle	Chromium	2
	Manganese	5
	Nickel	2
Todd Pacific Shipyards Corp – Seattle	Copper compounds	1,555
	N-Butyl alcohol	18,029
	Xylene (mixed isomers)	11,453
	Zinc (fume or dust)	48
Trim Systems – Seattle	Dichloromethane	15,147
Viox Corporation	Lead compounds	243

Table E-5. LUST sites and status

Site Name	Street Address	Release Notification Date	Status Date	Release Status	Affected Media		
					Soil	Ground-water	Surface Water
Alaska Marine Lines (Freight)	5615 W Marginal Way SW	02/06/91	06/01/95	Reported cleaned up	X	X	
Alaska Marine Lines (Shipyard)	7100 2nd Ave SW	12/14/92	06/01/95	Cleanup started	X	X	
Boeing Integrated Airport Sys (Exempt)	7701 14th Ave	08/12/92	05/21/95	Cleanup started	X		
Delridge Arco AM/PM	7301 Delridge Way SW	06/01/89	06/01/95	Reported cleaned up	X		
Rocky's Texaco/Taco Bell	7132 Delridge Way SW	10/03/90	10/02/92	Cleanup started	X	X	
Seattle City Light Stone Ave.	9809 Stone Ave. N	06/15/93	05/21/95	Reported cleaned up	X		
South Seattle Community College	6000 16th Ave SW	08/04/94	06/01/95	Reported cleaned up	X		
Terminal 115	6020-6730 W Marginal Way SW	05/06/93	06/01/95	Cleanup started	X	X	
Unocal Station # 3707	6956 M L King Jr Way So	06/28/90	01/15/97	Monitoring	X	X	
Baxster Rutherford	911 S Hosmoer St	08/08/97	08/11/97	Reported cleaned up	X		
Galvin Flying Center	7001 Perimeter Rd.	02/24/99	02/24/99	Reported cleaned up	X		
Hurlen Construction Company	700 So Riverside Dr/ PO BOX 90045	04/30/93	12/06/00	Reported cleaned up	X		
Interstate Coatings, Inc.	754 S Chicago St.	12/04/98	09/23/98	Cleanup started	X		
Marine Lumber Service, Inc.	558 S Kenyon St.	06/28/94	06/01/95	Cleanup started	X	X	
Michigan Street Shell	551 S Michigan St.	06/08/94	06/01/95	Cleanup started	X	X	
Olympic Steel Door	7800 7th Ave S	11/01/99	11/29/99	Awaiting cleanup	X	X	
Boeing Plant 2 Bldg 2-08	7755 E Marginal Way S	12/11/92	12/11/92	Cleanup started	X		
Boeing Plant 2	7755 E Marginal Way S	02/02/90	06/01/95	Cleanup started	X		
Boeing Plant 2 Bldg 2-01 (Exempt)	7755 E Marginal Way S	09/27/91	06/01/95	Cleanup started			
PLANT II	7755 E Marginal Way S	12/11/92	06/01/95	Reported cleaned up	X		
Puget Sound Energy	6349 18th Ave S	11/05/97	11/05/97	Cleanup started	X		
RCAG at Beacon Hill	Beacon Hill	02/04/99	08/06/98	Reported cleaned up	X		
Ryder Student Transportation Services	130 S Kenyon St	08/13/97	08/13/97	Reported cleaned up	X		
Seattle Housing Authority (Exempt)	4648 Viburnam Court	02/20/97	02/09/99	Unknown	X		
Seattle Yard	60 Diagonal S	07/10/90	09/29/95	Cleanup started	X	X	
Stephanie Crosby Property	8621 14th Ave S	09/20/00	09/13/00	Cleanup started	X		
Union Pacific Motor	420 S Dawson	07/10/90	06/01/95	Cleanup started	X	X	

Site Name	Street Address	Release Notification Date	Status Date	Release Status	Affected Media		
					Soil	Ground-water	Surface Water
WDOT River Street (Exempt)	107 River St	08/18/92	05/21/95	Cleanup started	X		
Alaska Traffic Consultants, Inc.	2214 Fourth Ave S	06/22/92	06/01/95	Cleanup started	X	X	
Andys Diner Inc.	3201 4th Ave S	03/24/93	03/24/93	Cleanup started	X	X	
Arco Facility #04090/Rajbir Sandhu	2200 Fourth Ave S	02/10/93	08/28/96	Cleanup started	X	X	
Budget Rent-a-Car of Washington-Oregon	1961-4th Ave S	01/21/92	12/17/01	Reported cleaned up	X		
Burfitt Property- Warehouse	3250 16th Ave W	09/21/01	08/06/01	Cleanup started	X		
Burlington Northern Santa Fe (Exempt)	2943 Colorado Ave S	12/18/98	10/20/98	Cleanup started	X		
Chevron 90636	5940 E Marginal Way	11/09/93	11/09/93	Awaiting cleanup	X		
Draper Machine Works Company	5055-4th Ave S	11/22/89	06/29/00	Reported cleaned up	X		
Equilon Seattle Distribution Terminal	2555 13th Ave SW	08/19/92	06/01/95	Reported cleaned up	X	X	
Flint Ink Bldg	1727 Alaskan Way S	03/01/00	03/20/00	Reported cleaned up	X	X	
Gai's Seattle French Baking	2006 S Weller	06/13/97	03/14/02	Reported cleaned up	X		
Glaicer Northwest, Inc.	5975 E Marginal Way S	06/01/89	09/28/95	Cleanup started	X		X
Harbor Island Plant	2720 13th Ave SW	06/22/89	06/01/95	Cleanup started	X		
Major League Statium Public Facilities District	3RD S & S Royal Brougham Wy	12/01/97	11/26/97	Reported cleaned up	X		
Pacific Express	3215 4th Ave S	05/01/98	01/21/00	Cleanup started	X	X	
Package Service, Inc.	3414 2nd Ave S	11/15/01	07/25/01	Cleanup started	X		
Penske Truck Leasing Company	3443 First Ave S	01/17/91	06/01/95	Reported cleaned up	X		
REI Woodowrking Former (Exempt)	3314 4th Ave S	04/15/96	04/15/96	Cleanup started	X	X	
Schucks Auto Supply	2905 4th Ave S	07/29/98	10/02/98	Reported cleaned up	X	X	
Star Rentals & Sales	1919 4th Ave S	01/09/99	01/09/99	Cleanup started	X	X	
Triangle Property	901 Maynard Ave S	05/02/96	05/02/96	Awaiting cleanup		X	
US General Services Administration	4735 E Marginal Way S	10/06/98	01/07/00	Monitoring	X	X	
United States Bakery, DBA United States Bakery, Inc.	2901 6th Ave S	09/18/92	01/09/02	Reported cleaned up	X		
Washington Trucking Association (Exempt)	4101 4th Ave	03/16/95	03/16/95	Awaiting cleanup	X		
Western Steel/Closed	145 S Horton	08/16/01	05/05/01	Awaiting cleanup	X	X	
Terminal 5	2805 26th Ave SW	06/09/98	06/09/98	Cleanup started	X		
Martin Airconditioning and Fuel Co., Inc.	2340 SW Spokane St.	01/25/91	04/27/00	Reported cleaned up	X		
Lockheed Shipbuilding Company Yard 2	2330 S.W. Florida St	05/04/89	06/01/95	Cleanup started	X	X	

Site Name	Street Address	Release Notification Date	Status Date	Release Status	Affected Media		
					Soil	Ground-water	Surface Water
General Construction Co.	3838 W Marginal Way SW	09/08/94	06/01/95	Reported cleaned up	X	X	
Seattle Fire Station #36	3600 23rd Ave SW	09/05/89	09/01/98	Reported cleaned up	X		
Terminal 105	4260W Marginal Way SW	03/23/94	06/01/95	Reported cleaned up	X		
Central Services Building	4201 W Marginal Way SW	07/26/91	06/01/95	Cleanup started	X	X	
Cooper Elementary School	1901 SW Genesee	06/12/98	06/12/98	Cleanup started	X		
Happy Guests HQ	4703 Delridge Way SW	02/11/97	02/07/97	Cleanup started	X		
Seattle Parks & Rec Delridge (Exempt)	6047 Delridge Way SW	10/21/93	02/27/01	Reported cleaned up	X		
Seaboard Lumber Company	4540 W Marginal Way	12/04/92	06/01/95	Awaiting cleanup	X		
Holnam Inc.	5400 W Marginal Way SW	01/23/92	06/01/95	Reported cleaned up	X		
Duwamish Shipyard Inc.	5658 W Marginal Way SW	10/11/00	10/11/00	Reported cleaned up	X		
Chemithon (Exempt)	5430 W Marginal Way SW	03/15/91	03/15/91	Cleanup started	X		
Kmart #4225	7345 Delridge	11/21/90	06/01/95	Reported cleaned up	X		
Julius Rosso Wholesale Nursery Co.	7245 W Marginal Way SW	10/10/94	06/01/95	Reported cleaned up	X		
Seattle Fire Station 11	1514 SW Holden St	05/04/98	05/04/98	Reported cleaned up	X		
Klein Property	9066 Delridge Way SW	11/17/99	11/17/99	Reported cleaned up	X		
Lennys Fuel Co.	9010 Delridge Way SW	08/08/91	06/01/95	Reported cleaned up	X		
Lennys Fuel Company	9025 Delridge Way SW	12/22/92	01/10/01	Reported cleaned up	X		
D & A Exxon	9857 17th Ave SW	05/02/89	01/10/01	Reported cleaned up	X		
Corvair Forge	9255 16th Ave SW	02/15/90	07/13/00	Unknown	X		
Parklake Homes	9900 8th Ave SW	12/23/98	01/07/99	Reported cleaned up	X		
Scougal Rubber Corporation	6239 Corson Ave S /PO BOX 80225	01/01/90	06/01/95	Cleanup started	X	X	
King County Airport	6518 Ellis Ave	12/15/92	09/01/98	Reported cleaned up	X	X	
Julius Rosson Wholesale Nursery Co.	6404 Ellis Ave S	09/19/98	01/07/99	Reported cleaned up	X		
The Burke Company	4201 Airport Way S/ PO BOX 80606	02/17/89	06/01/95	Reported cleaned up	X		
Marine Lumber Service, Inc.	525 S Chicago St /PO BOX 80964	06/03/94	06/01/95	Cleanup started	X		
VA Medical Center	1660 So Columbian Way	09/23/91	09/28/95	Cleanup started	X	X	
A N R Freight System	4501 6th Ave So	08/17/90	03/15/01	Reported cleaned up	X		
Kelly-Moore Paint Co.	5410 Airport Way S	04/21/94	06/01/95	Cleanup started	X		

Site Name	Street Address	Release Notification Date	Status Date	Release Status	Affected Media		
					Soil	Ground-water	Surface Water
United Parcel Serice, Inc.	4455 7th Ave S	09/08/89	06/01/95	Cleanup started	X	X	
Clayton VW Repair	4709 Martin Luther King Way S	09/12/90	05/21/95	Cleanup started	X	X	
Bobs Texaco Service	5304 1st Ave S	02/13/91	05/24/95	Awaiting cleanup	X	X	
Air Tec Company	5701 1st Ave S	05/09/00	05/09/00	Reported cleaned up	X		
Georgetown Gull #1228	5959 Corson Ave S	05/11/00	01/01/87	Cleanup started	X	X	
PNB Building	707 S Orcas St	01/16/92	05/21/95	Reported cleaned up	X	X	
Texaco Station#63-232-0400	600 S Michigan	03/23/94	01/20/00	Monitoring	X	X	
Georgetown Steamplant (Now a museum)	1131 S Elizabeth	11/06/89	04/27/00	Reported cleaned up	X		
A & T Pump	6525 Ellis Ave S	08/21/92	12/10/01	Reported cleaned up	X		
Mikes Mobil Service	6235 Airport Way So	09/24/90	04/17/01	Reported cleaned up	X		
Zellerbach Paper Company	6301 Airport Way S	08/13/91	02/19/02	Reported cleaned up	X		
North Coast Chemical	6300 17th Ave S	10/23/91	05/21/95	Cleanup started	X	X	
Western Bridge Co.	5900 Second Ave S	03/01/95	04/24/00	Reported cleaned up	X	X	
WF Carmody	220 S River St	05/18/99	10/26/98	Cleanup started	X	X	
Air Data Express, Inc.	525 S Front St	03/18/99	08/07/00	Reported cleaned up	X	X	
Puget Sound Truck Lines	7303 8th Ave S	06/12/91	09/27/95	Reported cleaned up	X		
Great Western Chemical	6900 Fox Ave S	05/17/90	06/01/95	Cleanup started	X		
PTL Partnership	6314 7th S	08/29/89	07/23/02	Reported cleaned up	X	X	
Texaco Station #63-232-0400	6200 Corson Ave S	10/03/90	06/01/95	Monitoring	X	X	
District Headquarters State	6431 Corson Ave S	04/17/91	06/01/95	Unknown	X		
Marginal Way Arco	7200 Marginal Way E	08/30/93	09/06/96	Monitoring	X	X	
Vic Markov Tire Co.	7300 E Marginal Way S	05/19/93	06/01/95	Monitoring	X		
Boeing North Field Delivery	7500 E Marginal Way S	09/14/89	05/10/93	Reported cleaned up	X	X	
Boeing North Field Bldg 3-374	7500 E Marginal Way S	02/01/95	01/30/95	Reported cleaned up	X	X	
Beoing N Field F & G Facility	7500 E Marginal Way S	05/17/94	06/01/95	Reported cleaned up	X	X	
Beoing N Field Green Hornet Area	7500 E Marginal Way S	05/17/94	06/01/95	Cleanup started	X	X	
Motor Pool	6650 Ellis Ave S	11/22/91	06/01/95	Reported cleaned up	X		
Seattle City Light Myrtle Street (Exempt)	1012 S Myrtle St	09/14/90	03/06/01	Reported cleaned up	X		
Seattle Fire Station 27	1000 S Myrtle St	06/29/00	05/31/02	Reported cleaned up	X		
BFI Federal Express Station	7607 Perimeter Rd.	01/12/90	06/01/95	Reported cleaned up	X	X	

Site Name	Street Address	Release Notification Date	Status Date	Release Status	Affected Media		
					Soil	Ground-water	Surface Water
Victor Oishi DBA, Vic's Union 76	7100 Beacon Ave So	06/01/90	06/01/95	Reported cleaned up	X		
Earle M Jorgensen Company	8531 E Marginal Way S	02/26/91	10/11/99	Reported cleaned up	X	X	
Thompson Site	8701 E Marginal Way	01/01/84	06/05/00	Reported cleaned up	X		
Firestone Retread Plant #127345	9220 E Marginal Way S	05/15/89	06/01/95	Reported cleaned up	X		
Firestone Retread Plant#127345	9220 E Marginal Way S	12/15/92	06/01/95	Reported cleaned up	X		
Developmental Center	9725 E Marginal Way S	07/20/89	06/01/95	Cleanup started	X	X	
Kenworth Truck Co.	8801 E Marginal Way S	05/13/97	07/15/99	Cleanup started	X	X	X
Museum of Flight Property	9404 E Marginal Way S	08/03/01	07/30/01	Awaiting cleanup	X	X	
605 So Riverside Drive (Mills Movers) (Exempt)	605 So Riverside Drive	03/26/99	02/26/99	Cleanup started	X		
RPM Merit	401 S Webster	08/19/94	06/01/95	Cleanup started	X	X	
Tacoma Seattle Trailer Repair	150 S Kenyon St.	12/16/99	12/16/99	Reported cleaned up	X		
Glitsa American Incorporated	327 S Kenyon Street	09/02/92	06/01/95	Cleanup started	X		
Royal Hwy Tours	255 S Holden St	10/11/94	06/01/95	Reported cleaned up	X		
Rasmussen Equipment Co, Inc.	415 S Cloverdale S	08/29/94	06/01/95	Reported cleaned up	X		
Razore Enterprise	500 S Sullivan	08/15/91	06/01/95	Reported cleaned up	X		
West Seattle #28	9200 8th Ave S	07/11/90	09/27/95	Reported cleaned up	X		
Gary Merlino Construction Co., Inc.	9125 10th Ave S	08/31/99	08/31/99	Reported cleaned up	X		
Chevron 98484	8700 14th Ave S	02/14/91	06/01/95	Cleanup started	X	X	
South Park BP	8819 14th Ave S	12/02/93	06/01/95	Awaiting cleanup	X	X	
Arthur J Warner	9001 14 Ave S	01/16/92	06/01/95	Reported cleaned up	X		
Malarkey Asphalt Company	8700 Dallas Avenue S	05/07/92	06/01/95	Cleanup started	X	X	
Bus and Parcel Service, Inc.	9004 14th S	10/18/90	04/25/00	Reported cleaned up	X		
Fruehauf Trailer Services, Inc.	9426 8th Ave S	04/25/98	04/17/99	Reported cleaned up	X	X	
Selland Auto Transport, Inc.	615 S 96th St	06/30/99	09/29/98	Cleanup started	X	X	
M.A. Segale, Inc.	1115 S 96th	05/31/91	06/01/95	Reported cleaned up	X		
Sunnydale Construction Co., Inc.	1119 S 96th	06/02/97	05/21/97	Reported cleaned up	X		
Camcal Co., Inc.	4000 Airport Way S	12/04/90	06/01/95	Cleanup started	X		
Kingdom Stadium	1046 1st Ave S	08/24/95	08/29/95	Cleanup started	X		
Terminal 18 (Port of Seattle)	2400 11th Ave SW	08/27/90	06/01/95	Cleanup started	X	X	
Terminal 18 (Port of Seattle/Pacific Molasses)	2400 11th Ave SW	02/18/98	02/12/98	Cleanup started	X		

Site Name	Street Address	Release Notification Date	Status Date	Release Status	Affected Media		
					Soil	Ground-water	Surface Water
Seattle Iron and Metals Corp.	2955 11th Ave SW	10/03/91	06/01/95	Cleanup started	X		
Stevedoring Services of America	3415 11th Ave SW	11/01/89	06/01/95	Reported cleaned up	X		
Lockheed Shipbuilding Company	2929 16th Ave W	04/24/92	01/10/01	Reported cleaned up	X		
Fisher Mills, Inc.	3235 16th Ave SW	10/17/00	07/20/00	Cleanup started	X	X	
Seattle Terminal/Closed	1652 SW Lander St	04/26/91	06/01/95	Cleanup started	X	X	
Terminal 30	2431 E Marginal Way S	08/27/90	06/01/95	Reported cleaned up		X	
Terminal 30	2431 E Marginal Way S	07/28/95	01/14/99	Unknown	X		
Terminal 25	3225E Marginal Way S	09/11/89	06/01/95	Reported cleaned up	X		
Emerald City Disposal	9 S Massachusetts	10/07/98	10/05/98	Cleanup started	X		
Desimone Property (Exempt)	8 S Idaho St	06/18/92	05/21/95	Reported cleaned up	X		
Harbor Associates/DUPES003023	1001 SW Klickitat Way	01/23/97	01/21/97	Cleanup started	X		
Pioneer Construction Materials Co.	910 Spokane St	06/19/89	06/01/95	Cleanup started	X	X	
Terminal 37	1201 Alaskan Way S	10/12/93	06/01/95	Cleanup started	X	X	
Federal Warehouse	1555 Alaskan Way S	05/12/98	02/11/00	Reported cleaned up	X	X	
Terminal 106 West	44 S Nevada St.	02/11/92	06/01/95	Monitoring	X	X	
USCG Support Center Seattle-Pier 35	1519 Alaskan Way S	10/09/90	06/01/95	Cleanup started	X		
USCG Support Center Fac Seattle-Pier 36	1519 Alaskan Way S	05/05/92	06/01/95	Reported cleaned up	X		
Union Pacific RR/Closed	801 1st Ave S	07/10/90	11/15/96	Reported cleaned up	X		
Leavitt Shay Industrial Bldg	1217 6th Ave S	03/17/95	07/27/95	Reported cleaned up	X		
Atlantic Operating Base	1555 Airport Way S	03/04/91	07/27/95	Reported cleaned up	X		
City of Seattle Water Department	705 Charles St East	11/03/89	06/01/95	Cleanup started	X		
Texaco Star Mart	511 Dearborn St	12/27/90	08/15/00	Monitoring	X	X	
Sea.City Charles St.	705 S Charles St.	10/31/90	05/21/95	Cleanup started	X	X	
Facility Maintenance Headquarters	802 S Dearborn St	11/21/90	06/01/95	Cleanup started	X		
Coast Crane Co.of Washington	1531 Utah Ave S	10/27/89	06/01/95	Cleanup started	X	X	
Ryerson Operating base	1220 4th Ave S	12/12/95	12/12/95	Cleanup started	X	X	
WA DOT	1213 4th Ave S	07/20/01	07/17/01	Cleanup started	X		
Atlas Supply (Expempt)	1736 4th Ave S	02/07/96	02/07/96	Cleanup started	X		
Jack in the Box 4th & Holgate	1907 4th Ave S	10/16/92	05/21/95	Cleanup started	X	X	
Music-vend Distributing Co.	1550 4th Ave S	12/09/93	05/17/94	Monitoring	X	X	

Site Name	Street Address	Release Notification Date	Status Date	Release Status	Affected Media		
					Soil	Ground-water	Surface Water
Flajole Brothers Inc.	2201 4th Ave S	05/06/93	06/01/95	Cleanup started	X	X	
Power Distribution Headquarters	2255 4th Ave S	03/12/91	06/01/95	Cleanup started	X		
Mach Truck Sales and Service	2025 Airport Way S	07/29/94	05/21/95	Reported cleaned up	X		
Oberto Sausage Co.	2005 Airport Way S	06/11/99	04/15/99	Cleanup started		X	
Veca Electric Co.	1762 Airport Way S	06/19/92	05/06/02	Reported cleaned up	X		
Unocal 5472	3460 1st Ave S	09/24/90	06/02/95	Monitoring	X	X	
Crescent Foods Warehouse	25 S Handford St	11/06/89	05/21/95	Reported cleaned up	X		
Port of Seattle	25 S Horton St	08/27/90	01/06/98	Reported cleaned up	X	X	
Sears Auto Service Center	2753 Utah S	10/19/92	06/01/95	Cleanup started	X		
Sears Rental & Distribution Facility	2753 Utah S	03/10/93	06/01/95	Awaiting cleanup	X	X	
Growing Green Interiors	2959 First Ave S	04/19/89	06/01/95	Cleanup started	X		
Chevron 2740 1st S	2740 1st Ave S	09/17/91	05/21/95	Monitoring	X	X	
Seattle WA. Line Seg 51 Pint 448	2700 Occidental St S	03/23/95	03/23/95	Cleanup started	X		
Burger King Site	3301 4th Ave S	05/14/90	07/10/02	Reported cleaned up	X		
3433 4th S Property	3433 4th Ave S	03/27/89	05/21/95	Monitoring	X	X	
Bill Bailey for Times of Seattle	2701 4th Ave S	02/27/89	07/13/00	Unknown	X		
Hoehne Inc.	2763 4th Ave S	09/16/93	09/16/93	Cleanup started	X		
Newell Properties	2730 4th Ave S	05/25/94	06/01/95	Monitoring	X	X	
Seattle Fire Station 14	3224 4th Ave S	02/14/00	02/14/00	Cleanup started	X		
Friction Service	555 So Lander	02/14/94	09/30/95	Cleanup started	X		
Exxon 7-9532/Closed	2401 4th Ave S	06/03/88	06/01/95	Reported cleaned up	X		
Texaco Station #63-232-0043	2461 4th Ave S	05/13/92	11/15/93	Monitoring	X	X	
Publix Fruit & Produce Co., Inc.	2415 Airport Way S	11/02/90	06/01/95	Reported cleaned up	X		
Lee& Eastes Tank Lines Inc.	2418 Airport Way S	06/23/95	07/06/95	Cleanup started	X	X	
Northwest Motor Parts	2930 6th Ave S	12/11/89	05/21/95	Reported cleaned up	X		
City of Seattle Water Department	2700 Airport Way S	10/05/93	06/01/95	Cleanup started	X	X	
G Heilman Brewing Co.	3100 Airport Way S	11/22/89	05/18/00	Monitoring	X	X	
Scalzo Co (Exempt)	3211 Airport Way S	02/16/94	05/21/95	Cleanup started	X		
Evergreen Trails, Inc/Lust	720 S Forest St	05/03/90	09/28/95	Cleanup started	X	X	
Cascade Commerical Company	3825 First Ave S	06/05/90	04/10/00	Reported cleaned up	X		

Site Name	Street Address	Release Notification Date	Status Date	Release Status	Affected Media		
					Soil	Ground-water	Surface Water
South Service Center (Seattle City Light)	3613 4th Ave S	04/05/90	06/01/95	Cleanup started	X	X	
Walt's Radiator 3838 4TH S	3838 4th Ave S	04/03/95	07/06/95	Reported cleaned up	X		
Ackerley Communication of the NW, Inc	3601 6th Ave S	05/30/89	04/11/00	Reported cleaned up	X		
Western Peterbilt	3707 Airport Way S	03/01/89	06/01/95	Cleanup started	X		
A.O.Smith Corp	60 S Spokane St	07/02/90	07/13/00	Unknown	X		
Spokane Street Site	450 S Spokane St	10/22/93	06/01/95	Cleanup started	X	X	
Signals Branch 7HDQ Site	3700 9th Ave S	02/07/91	08/25/00	Reported cleaned up	X		
Pacific Fruit and Produce	4103 2nd Ave S	01/17/92	06/01/95	Cleanup started	X	X	
4th South Gull #219	4115 4th Ave S	08/16/91	01/17/02	Reported cleaned up	X		
Seattle School Facilities	4141 4th Ave S	08/23/90	05/21/95	Reported cleaned up	X		
Golden Grain Macaroni Co	41004th Ave S	05/06/92	08/06/02	Reported cleaned up	X		
Leo Fix Transfer & Storage Co, Inc.	4700 Denver Ave S	06/24/93	11/04/97	Reported cleaned up	X		
Pro Express Group, Inc. (Frmrly Terminal Freight Handling Co.)	4800 Denver Ave S	07/10/90	05/14/97	Reported cleaned up	X		
Cascade Machinery & Electric	4600 E Marginal Way S	09/19/90	07/29/02	Reported cleaned up	X		
Perfection Smokery	4660 E Marginal Way S	07/13/90	06/01/95	Unknown	X	X	
Loomis Armored Inc.	5200 E Marginal Way S	01/03/90	02/06/91	Reported cleaned up	X		
Incon Packaging	5801 E Marginal Way S	12/15/89	06/01/95	Reported cleaned up	X		
James Hardie Gypsum	5931 E Marginal Way S	01/11/91	01/26/01	Reported cleaned up	X		
Longview Fibre Company	5901 E Marginal Way S	01/01/88	06/01/95	Cleanup started	X		
Naational Transfer, Inc.	5265 Utah Ave S	05/24/90	06/01/95	Reported cleaned up	X		
80 S Hudson St Site	80 S Hudson St	08/06/90	04/29/97	Reported cleaned up	X	X	
Dawson Street Land Company	54 S Dawson	06/15/92	07/19/00	Monitoring	X		
US Bank of Washington	1137 SW Hanford St	12/15/89	01/25/90	Reported cleaned up	X		

Source: Ecology 2002d.

Table E-6. Spills reported to the Seattle Public Utility's spill coordinator program from October 1998 to May 2002

DATE	LOCATION	SPU DIVISION INVOLVED	OTHER AGENCIES?	SPILLER	MATERIAL & QUANTITY	SOURCE /CAUSE	MEDIA AFFECTED	SSC RESPONSE?	REMARKS
10/27/98	W. Seattle Freeway	DWU	SEATRAN; SFD	Coca-Cola truck	Petroleum; 10+ gal.	MVA	Catch basins	No	
12/31/98	Ellis Yard; S. Myrtle & Ellis Ave	Water Ops.	SPU contractor	SPU	Hydraulic Fluid; 5 gal.	Loose hose fitting	Water body; drains; street	Yes	Reported to DOE
4/3/99	4401 Sears Dr. S.	DWU	SPD	Unknown	Motor oil; 2 gal	Oil from car drained into CB	Drains	No	
5/17/99	6th S. & S. Orcas	DWU	SEATRAN	Conway Trucking	Diesel oil; 80 gal.	Leak?	Drains	No	DWU response to protect CBs. Marine vacuum cleaned CBs
6/2/99	S. River St. & Occidental Ave S	DWU	SEATRAN; USCG; DOE; EPA; SPU contractor.	Unknown	Petroleum substance; 200 gal?	Illegal dumping	Soil; drains; potential to Duwamish	Yes	SPU/DWU response to ID drain system
11/1/99	10th Ave. S & S. King St.	DWU		Unknown	"Milky-white substance" in CB	Unknown	Drains	Yes	Rain had washed material out already
11/3/99	10th Ave. S. & S. Weller	DWU		Unknown	See 11/1/99 entry		Drains	Yes	See 11/1/99 entry
11/5/99	5820 Oakhurst Rd. S.	DWU	SEATRAN	SPU	Hydraulic Fluid; 7 gal.	Vactor truck line burst	Street	No	Cleaned up from street surface
2/14/00	Ellis Yard (S. Myrtle St.& Ellis Ave. S.	Water Ops.	SPU contractor	SPU truck	Diesel fuel; 10 gallons	Punctured fuel tank on dump truck	Soil in yard; large quantities	Yes	Significant cleanup of soil by Foss
4/19/00	1300 S. Dearborn	DWD	SEATRAN; SPU contractor	Herzog Glass, Inc.	Cerium Oxide solution	Illegal disposal in storm drain	Inlet & C/B	Yes	Drain vactored; owner advised
6/6/00	7932 45th Ave. S.	DWD		Unknown	Oil; 5 gallons	Oil changes	Drains & C/B	Yes	Marine Vac. Called for pump-out
9/13/00	7th Ave S. & S. Cort St.	DWD		Unknown	Oil (diesel?); 50 gallons	Unknown	Drain & CB	Yes	Marine Vac. To clean.
10/21/00*	S. River St. & 3rd Ave. S.	DWD	SCL	SCL	Transformer oil; 10 gallons	Transformer fell off pole	Street, drain	Yes	SCL cleaned up spill, inc. <1 gal. in CB
12/2/00 *	4th Ave. S & S Holgate St.	DWD	SEATRAN; SPD; SFD	Unknown – SPD Case # 559352	Diesel	MVA – Jackknife	Street	Yes	SFD contained spill in street; drains clear
12/19/00 *	2513 11th Ave. SW – Harbor Island	DWD	USCG	American Transport Inc.	Diesel Fuel: 230 gallons	MVA – Tank truck & train	Soil	Yes	ATI contractor cleaned up spill
2/1/01	1st Avenue & Lander	DWD		Rabanco	Diesel; 50 gals	Truck tank leak	Street, inlet, C/B		Rabanco contractor cleaned up

DATE	LOCATION	SPU DIVISION INVOLVED	OTHER AGENCIES?	SPILLER	MATERIAL & QUANTITY	SOURCE /CAUSE	MEDIA AFFECTED	SSC RESPONSE?	REMARKS
2/8/01	4th Avenue & Spring	EMS	Citizen report to SPD, then to SPU	S'TILE	Tile Grout decant; unknown	Contractor clean-out	Street, inlet, C/B	Yes	
2/26/01	Puget Dr. SE & Beacon Way SE	Watershed		unknown	Used oil, water & antifreeze	Illegal dumping on SPU ROW	soil	Yes	PIR mobilized
3/2/01	4th S. & S. Holgate	Water Ops		Infiltration in water line repair site	Diesel or heating oil (?); unknown	unknown	Soil; excavation	Yes	Poss. earthquake related
3/26/01 *	16 S. Michigan St.	SWQT	Citizen report	Unknown	Diesel/oil mixture; 10-15 gals.	Illegal dumping	Soil; drainage swale	Yes	PIR mobilized
4/9/01	8507 12th Avenue S.	SWQT	Ecology notified SPU	Unknown	Motor oil; 5 gals.	Illegal dumping	Soil in ditch	Yes	
4/13/01	16th SW & SW Florida (Harbor Is.)	DWD	USCG	Unknown	Oil sheen from outfall	Unknown	W. Waterway, Elliot Bay	Yes	Foss put in boom
5/2/01	Maynard bet. King & Jackson	SWQT		Unknown	Grease; 5 gals.	Illegal dumping	street	Yes	
6/8/01	44th Ave SW & SW Raymond St	DWD	SEATRAN	Unknown	Battery acid; 2 gals.	Illegal dumping	Street, drain	Yes	SEATRAN disposed of battery
6/11/01	49th Ave. SW & SW Andover	DWD		Unknown	Waste oil; 10 gals.	Illegal dumping	drain	Yes	PIR called to clean C/B
7/2/01	4634 E. Marginal Way S. (in rear)	DWD	SEATRAN	Unknown	Diesel fuel; 10 gals.	Vehicle tank leak?	street	Yes	SEATRAN clean street
7/2/01	1509 S. Spokane St.	DWD		Unknown	Paints & unknown liquids; 6-12 cans	Illegal dumping	Soil, drains, Duwamish(?)	Yes	
7/2/01	3055 SW 116th Place	SWQT		Advanced Pool & Spa	Pool water & cleaner	Unknown	Soil, street, drains, vegetation	Yes	
7/9/01	5801 2nd Ave S.	DWD	King Co. Haz-mat & Ecology notified	Unknown	Diesel	Unknown	Drains	Yes	
7/19/01*	S. River St. & Occidental – under 1st Ave. S bridge	EMS/DWD	Ecology	Unknown	Diesel Fuel; 20+ gallons	Fuel tank leak	soil	Yes	Investigation on-going
8/16/01	E. Marginal Way & S. Holder St.	DWD	SEATRAN, SFD	Unknown	Diesel Fuel; 150 gals.	Truck accident	Drains, street, soil	Yes	Foss cleaned C/B for spiller
10/10/01	California Ave SW & SW Graham St.	DWD, SWQT	SEATRAN	Unknown	Paint; 1 gal.	Illegal dumping	Drains, street	Yes	

DATE	LOCATION	SPU DIVISION INVOLVED	OTHER AGENCIES?	SPILLER	MATERIAL & QUANTITY	SOURCE /CAUSE	MEDIA AFFECTED	SSC RESPONSE?	REMARKS
10/10/01	35th Ave SW between SW Henderson & SW Barton	DWD	SEATRAN	Waste Management	Hydraulic fluid; 5 gals.	Truck blew hydraulic line	Street, drain	Yes	
2/4/02	9228 10th Ave. S.	DWD		9228 10th Ave. S.	Black liquid	Seepage from parking lot	Water body	Yes	PIR mobilized
2/23/02 *	48th Ave. S & S Roxbury	DWD	City Light	Harold Dolstod	Transformer oil (mineral oil)	Car-pole accident	Drains, street	Yes	PIR mobilized
3/11/02	I-5 @ 6th & Spokane	SWQT	WashDOT; SPU contractor	Glacier	Concrete aggregate	Truck spill	Drains, street	Yes	Foss/PIR cleaned up
3/12/02 *	4th Ave. S & S Orcas	DWD	SEATRAN	Unknown	Gasoline & oil; 2 gals.	MVA	Drains, street		
3/14/02 *	Rainier Ave. S & S Findlay	DWD	SEATRAN	Unknown	Latex paint; 5-10 gals.	Unknown	Drains, street	Yes	PIR mobilized
3/18/02	2900 S. King St.	DWD		Jerry Bennett	Oil; 2 gals.	Illegal dumping	Drains	Yes	Passed to SPU surface water quality team for source investigation
3/26/02	S. Maynard St. & 7th Ave. S.	DWD		Honey Court Restaurant	Cooking Oil; 10-20 gals.	Overfilled container	drain	Yes	
4/8/02	10th Ave. S. & S. Elmgrove St.	SSC		Long Painting (?)	Paint residue; unknown	Poss. dumping	Drains	Yes	Passed to SPU surface water quality team for source investigation
4/9/02	S. Bangor St. & Renton Ave. S.	SSC	SEATRAN, SPD, SFD	Citizen	Gas, oil, ATF; 4 gals.	MVA	Drains, street	Yes	PIR mobilized
4/10/02	7700 14th Ave. S.	SSC/DWD	SFD, Ecology	BOC Gases	Lime & water mix; 75 gals.	Failed to turn off valve	Water, drains	Yes	Foss mobilized
4/28/02	10814 Beacon Ave. S.	DWD		Unknown	Gasoline; unknown	Illegal dumping	SWD valve chambers	Yes	PIR mobilized to clean
5/1/02	3641 2nd Ave. S	SSC		Unknown	Waste oil; 10 gals.	Illegal dumping?	Soil	Yes	Poss. BNSF ROW
5/1/02	2nd Ave. S. & S. Spokane St.	SSC		Unknown	Oil; 5 gals.	Illegal dumping?	Soil, street	Yes	Contractor cleaned up
5/8/02 *	640 S. Spokane St.	SSC		Citizen	Antifreeze; 2 gals.	Illegal dumping	Street	Yes	Citizen cleaned up
5/13/02 *	1046 1 St Ave. S	DWD	SFD	Union 76 station	Gasoline; 30+ gals.	Spill while filling car	Drain, street	Yes	PIR to pump C/B

SOURCE: Schmoyer (2002)
ATI – SPU contractor
BNSF – Burlington Northern Santa Fe Railroad
CB – catch basin
DWU/DWD – SPU Drainage and Wastewater Division
EMS – Seattle Environmental Management Services
MVA – motor vehicle accident
PIR – change to SPU contractor
SEATRAN – Seattle Transportation
SFD – Seattle Fire Department
SPD – Seattle Police Department
SWQT – SPU Surface Water Quality Team
USCG – US Coast Guard

Table E-7. Spills along the Duwamish River reported to King County's Environmental Tracking Database from January 1995

Material Description	Address	Quantity	Unit	Incident ID	Received Date	Source
Chemical				423377	3/4/1996	Commercial
Chemical				423570	3/29/1996	Commercial
Chemical		165	gallon	423731	4/16/1996	Commercial
Chemical				424629	7/23/1996	Commercial
Chemical	8025 10th Ave S			424727	7/29/1996	Commercial
Chemical				424936	8/29/1996	
Chemical				425651	12/13/1996	Commercial
Chemical		30	gallon	426030	1/31/1997	Manufacturer
Chemical	5795 S 130th Pl			426389	3/19/1997	Commercial
Chemical				427534	8/12/1997	Other
Chemical	Port of Seattle			527454	6/25/2002	Vessel- cargo
Debris/garbage	636 S Riverside Dr			520282	8/14/2001	Commercial
Dust		5	pound	426882	5/27/1997	Commercial
Dust				429753	7/9/1998	Mining site
Dust	3801 E Marginal Way S			515425	1/12/2001	Commercial
Dust				515705	1/17/2001	Commercial
Dust				515788	1/23/2001	Other
Dust				519784	7/17/2001	Commercial
Mud/silt				426158	2/15/1997	Dredging site
Mud/silt	266 Bldg, outside on the SE corner			428420	12/23/1997	Commercial
Not available	150 gallons Non-potable water from brook	150	gallon	423421	3/11/1996	Commercial
Not available				424318	6/14/1996	Construction site
Not available				427276	7/12/1997	Vessel- pleasure craft
Not available		10	gallon	427294	7/16/1997	Vessel-tank barge
Not available				427300	7/16/1997	Commercial
Not available	3417 S 120th Pl			428540	1/18/1998	Commercial
Not available				500625	10/20/1998	Manufacturer
Not available		5	gallon	502110	1/21/1999	Unknown

Material Description	Address	Quantity	Unit	Incident ID	Received Date	Source
Not available	8801 E Marginal Way			503304	3/20/1999	Commercial
Not available	121 So River St in the Duwamish River	1	quart	504812	6/23/1999	Vessel- tug boat
Not available				505009	6/29/1999	Municipal/industrial discharge
Not available		700	gallon	505096	7/8/1999	Construction site
Not available	725 South Elm Grove, South Park area 73			505548	7/28/1999	Motor vehicle
Not available	601 S Myrtle St			507092	10/13/1999	Commercial
Not available	14th Street Bridge			507109	10/13/1999	Unknown
Not available		1	each	508249	12/11/1999	Other
Not available	7100 2nd Ave SW			508633	1/6/2000	Other
Not available				511530	5/31/2000	Unknown
Not available				517688	4/25/2001	Commercial
Not available	Marginal Way			522242	11/12/2001	Manufacturer
Not available	Duwamish River near crane #71-72	1	container	523235	12/22/2001	Unknown
Not available	Michigan St & 1st Ave Bridge			527081	6/11/2002	Unknown
Not available	3838 W Marginal Way S	2000	ton	528982	9/11/2002	Vessel- other
Not available	5900 W Marginal Way	5	ton	529630	10/16/2002	Commercial
Not available				529654	10/17/2002	Commercial
Not available				518215	5/9/2001	Vessel- tug boat
Not available				530297	11/16/2002	Vessel- tug boat
Other hazardous				426080	2/11/1997	Unknown
Other hazardous		1,100	gallon	428156	11/12/1997	Commercial
Other hazardous				428272	11/26/1997	Commercial
Other hazardous	10655 Pacific Hwy S Skagen Marina	100	pound	429389	5/18/1998	Vessel- pleasure craft
Other hazardous				429447	5/29/1998	Commercial
Other hazardous		3300	gallon	429653	6/10/1998	Drum leak/abandoned
Other hazardous		10	gallon	429757	7/10/1998	Commercial
Other hazardous				509812	3/1/2000	Other
Other hazardous	1801 16th Ave SW	3	gallon	512138	7/10/2000	Vessel- unknown
Other hazardous	1st Ave Br, Mich St Exit, sign to 1st Ave			514120	9/22/2000	Unknown
Other hazardous	9802 M L King JR Way S			521285	9/28/2001	Commercial
Other hazardous	7700 14th Ave S			525690	4/10/2002	Industrial facility

Material Description	Address	Quantity	Unit	Incident ID	Received Date	Source
Petroleum – oil other				422157	9/16/1995	Unknown
Petroleum – oil other		55	gallon	422634	12/2/1995	Drum leak/abandoned
Petroleum – oil other				425302	10/21/1996	Unknown
Petroleum – oil other		50	feet	425484	11/18/1996	Unknown
Petroleum – oil other	122nd and 42nd South			425599	12/6/1996	Unknown
Petroleum – oil other		10	gallon	425631	12/10/1996	Transportation-vehicle
Petroleum – oil other	250 feetft north of where 1-5 crosses the			426160	2/15/1997	Other
Petroleum – oil other	16 S Michigan	1	cuo	428160	11/12/1997	Vessel- tank barge
Petroleum – oil other		1	gallon	429771	7/13/1998	Commercial
Petroleum – oil other				500912	11/6/1998	Municipal/industrial discharge
Petroleum – oil other	1 Mi south of Harbor Island			501459	12/10/1998	Unknown
Petroleum – oil other	4020 E Madison St			502471	2/9/1999	Unknown
Petroleum – oil other		1	sheen	503373	3/30/1999	Unknown
Petroleum – oil other	5600 W Marginal Way	2	gallon	507697	11/16/1999	Vessel- cargo
Petroleum – oil other		7,000	gallon	508352	12/20/1999	Transportation- aire
Petroleum – oil other	600 - 700 ft long by 20 ft wied rainbo			509901	3/22/2000	Unknown
Petroleum – oil other	7912 7th Ave S AAA Tractor Sales			510430	4/18/2000	Commercial
Petroleum – oil other	3200 W Marginal Way SW	1	gallon	510728	4/12/2000	Transportation-vehicle
Petroleum – oil other	3840 W Marginal Way SW	1	gallon	511358	5/31/2000	Vessel- other
Petroleum – oil other	910 SW Spokane St	1	sheen	520428	8/17/2001	Unknown
Petroleum – oil other	Foot off bridge			523634	1/12/2002	Unknown
Petroleum – oil other		1	sheen	525719	4/12/2002	Unknown
Petroleum – oil other	Foot of River Street	1	sheen	528353	8/13/2002	Vessel- pleasure craft
Petroleum – unknown				422367	10/27/1995	Unknown
Petroleum – unknown	180 Foot fishing processor rolled over i			423823	4/30/1996	Vessel- fishing
Petroleum – unknown				423830	4/30/1996	Unknown
Petroleum – unknown				423990	5/16/1996	Unknown
Petroleum – unknown		5	gallon	424100	5/28/1996	Unknown
Petroleum – unknown				424158	6/4/1996	Vessel- pleasure craft
Petroleum – unknown		20	gallon	424316	6/13/1996	Commercial
Petroleum – unknown	500 X 500 foot non-recoverable sheen			424749	8/6/1996	Unknown

Material Description	Address	Quantity	Unit	Incident ID	Received Date	Source
Petroleum – unknown				425413	11/6/1996	Unknown
Petroleum – unknown	1608 S 96th, across from Boeing, next to			427331	7/22/1997	Unknown
Petroleum – unknown				428029	10/22/1997	Unknown
Petroleum – unknown				428187	11/18/1997	Unknown
Petroleum – unknown				428346	12/9/1997	Unknown
Petroleum – unknown				428566	1/22/1998	Unknown
Petroleum – unknown				428870	3/7/1998	Unknown
Petroleum – unknown				429366	5/14/1998	Unknown
Petroleum – unknown				429409	5/21/1998	Unknown
Petroleum – unknown				429607	6/22/1998	Unknown
Petroleum – unknown				429633	6/19/1998	Drum leak/abandoned
Petroleum – unknown		1	sheen	501997	12/27/1998	Unknown
Petroleum – unknown		1	sheen	502652	2/18/1999	Unknown
Petroleum – unknown		1	sheen	505978	8/17/1999	Unknown
Petroleum – unknown				506614	9/20/1999	Unknown
Petroleum – unknown		1	sheen	507337	10/27/1999	Unknown
Petroleum – unknown		1	sheen	507540	11/5/1999	Unknown
Petroleum – unknown		1	sheen	507805	11/19/1999	Unknown
Petroleum – unknown		1	sheen	507996	11/17/1999	Vessel- tank barge
Petroleum – unknown		1	sheen	508068	12/7/1999	Unknown
Petroleum – unknown		1	sheen	508281	12/16/1999	Unknown
Petroleum – unknown		1	sheen	509371	2/21/2000	Unknown
Petroleum – unknown	5900 W Marginal Way	1	sheen	509526	3/1/2000	Unknown
Petroleum – unknown		200	yard	509885	3/21/2000	Unknown
Petroleum – unknown		1	sheen	510916	4/29/2000	Unknown
Petroleum – unknown	5600 block, W Marginal Way	1	sheen	511619	6/10/2000	Unknown
Petroleum – unknown		1	sheen	511959	6/30/2000	Unknown
Petroleum – unknown		1	sheen	512508	7/31/2000	Unknown
Petroleum – unknown		1	sheen	512510	7/31/2000	Unknown
Petroleum – unknown		1	sheen	514367	10/30/2000	Unknown
Petroleum – unknown				514580	11/13/2000	Unknown

Material Description	Address	Quantity	Unit	Incident ID	Received Date	Source
Petroleum – unknown		1	sheen	514806	11/29/2000	Unknown
Petroleum – unknown				515173	12/20/2000	
Petroleum – unknown		1	sheen	516504	3/6/2001	Unknown
Petroleum – unknown		1	sheen	516704	3/10/2001	Unknown
Petroleum – unknown	1801 16th Ave SW	1	sheen	518727	6/3/2001	Unknown
Petroleum – unknown		1	sheen	521981	10/31/2001	Unknown
Petroleum – unknown	Lower Duwamish River	1	sheen	522518	11/26/2001	Unknown
Petroleum – unknown	1st Ave S Bridge & Fox Ave			523200	12/21/2001	Unknown
Petroleum – unknown				527553	7/8/2002	Unknown
Petroleum – unknown	Between Boyer Co and Hurlan Construction	1	sheen	530278	11/10/2002	Vessel- cargo
Petroleum – waste/used oil				424464	6/4/1996	Commercial
Petroleum – waste/used oil				424644	7/24/1996	Commercial
Petroleum – waste/used oil				424835	8/16/1996	Commercial
Petroleum – waste/used oil				424875	8/21/1996	Commercial
Petroleum – waste/used oil				425416	11/8/1996	Illegal dump site
Petroleum – waste/used oil		1,140	cubic yards	425890	1/13/1997	Underground storage tank
Petroleum – waste/used oil				427183	7/1/1997	Commercial
Petroleum – waste/used oil				427361	7/24/1997	Commercial
Petroleum – waste/used oil				427540	8/13/1997	Motor vehicle
Petroleum – waste/used oil		30	gallon	429232	4/27/1998	Unknown
Petroleum- diesel fuel				422170	9/25/1995	Commercial
Petroleum- diesel fuel		1	quart	422686	12/11/1995	Commercial
Petroleum- diesel fuel		25	gallon	422721	12/14/1995	Vessel- tug boat
Petroleum- diesel fuel				422722	12/14/1995	Unknown
Petroleum- diesel fuel	2 Gallons of diesel in water	2	gallon	423441	3/9/1996	Commercial
Petroleum- diesel fuel		200	gallon	423561	3/28/1996	Unknown
Petroleum- diesel fuel		110	gallon	423711	3/4/1996	Transportation-vehicle
Petroleum- diesel fuel				425090	9/20/1996	Unknown
Petroleum- diesel fuel				426153	2/19/1997	Unknown
Petroleum- diesel fuel	48th S near Interurban exit off 1-5 south	50	gallon	426157	2/15/1997	Transportation-vehicle
Petroleum- diesel fuel	10161W Marginal Pl S	150	gallon	426354	3/13/1997	Aboveground storage tank

Material Description	Address	Quantity	Unit	Incident ID	Received Date	Source
Petroleum- diesel fuel		1	gallon	426556	4/11/1997	Vessel- tug boat
Petroleum- diesel fuel		50	gallon	426563	4/11/1997	Vessel- fishing
Petroleum- diesel fuel		5	gallon	426613	4/20/1997	Vessel- fishing
Petroleum- diesel fuel		1	gallon	426660	4/24/1997	Unknown
Petroleum- diesel fuel		150	gallon	427231	6/4/1997	Commercial
Petroleum- diesel fuel	4443 S 134th Pl	25	gallon	427650	8/26/1997	Motor vehicle
Petroleum- diesel fuel	402 S Dawson			427710	9/4/1997	Transportation- rail
Petroleum- diesel fuel	700 S Riverside Dr	600	gallon	427764	9/13/1997	Vessel- tug boat
Petroleum- diesel fuel		50	gallon	427882	10/2/1997	Unknown
Petroleum- diesel fuel		75	gallon	427900	10/4/1997	Vessel- cargo
Petroleum- diesel fuel		35	gallon	427939	10/8/1997	Transportation-vehicle
Petroleum- diesel fuel		10	gallon	428229	11/21/1997	Vessel- cargo
Petroleum- diesel fuel	1608 S 96th St	2	gallon	428324	12/4/1997	Vessel- pleasure craft
Petroleum- diesel fuel				429542	6/10/1998	Unknown
Petroleum- diesel fuel		5	gallon	429669	6/19/1998	Vessel- tug boat
Petroleum- diesel fuel				502473	2/9/1999	Commercial
Petroleum- diesel fuel	5975 East Marginal Way, Seattle Access			503503	4/8/1999	Unknown
Petroleum- diesel fuel		50	gallon	504411	6/2/1999	Unknown
Petroleum- diesel fuel	122 River St	1	sheen	504483	6/2/1999	Unknown
Petroleum- diesel fuel				505156	4/30/1999	Construction site
Petroleum- diesel fuel		2	cup	505257	7/14/1999	Transportation-vehicle
Petroleum- diesel fuel				507040	10/7/1999	Unknown
Petroleum- diesel fuel	1st Ave South Bridge, southbound at east	20	gallon	507102	10/13/1999	Transportation-vehicle
Petroleum- diesel fuel	3800 W Marginal Way S	1	gallon	508183	12/13/1999	Commercial
Petroleum- diesel fuel	8801 E Marginal Way S	10	gallon	508909	1/26/2000	Underground storage tank
Petroleum- diesel fuel	7500 Block, E Marginal Way	1	sheen	509464	2/27/2000	Unknown
Petroleum- diesel fuel		1	sheen	510653	5/1/2000	Unknown
Petroleum- diesel fuel		1	sheen	510878	5/10/2000	Unknown
Petroleum- diesel fuel		70	gallon	511622	6/10/2000	Commercial
Petroleum- diesel fuel		2,500	gallon	512349	7/20/2000	Transportation-vehicle
Petroleum- diesel fuel	6700 W Marginal Way			513188	8/31/2000	Motor vehicle

Material Description	Address	Quantity	Unit	Incident ID	Received Date	Source
Petroleum- diesel fuel		20	gallon	514236	10/25/2000	Vessel- tug boat
Petroleum- diesel fuel				514540	10/26/2000	Illegal dump site
Petroleum- diesel fuel		600	cubic ft	515786	1/23/2001	Unknown
Petroleum- diesel fuel		1	sheen	516170	2/12/2001	Unknown
Petroleum- diesel fuel	2720 13th Ave	1	sheen	518249	5/14/2001	Commercial
Petroleum- diesel fuel		1	gallon	518250	5/14/2001	Vessel- tug boat
Petroleum- diesel fuel				518865	6/18/2001	Unknown
Petroleum- diesel fuel	3301 S Norfolk			521104	9/17/2001	Underground storage tank
Petroleum- diesel fuel	2720 13th Ave SW	5	gallon	522183	11/8/2001	Pipeline
Petroleum- diesel fuel	2555 13th Ave SW	3,700	gallon	522482	11/21/2001	Transportation-vehicle
Petroleum- diesel fuel		5	gallon	522646	11/19/2001	Motor vehicle
Petroleum- diesel fuel	8155 1st Ave S	5	gallon	524203	2/8/2002	Motor vehicle
Petroleum- diesel fuel				524235	2/8/2002	Unknown
Petroleum- diesel fuel	6365 1st Ave S	15	gallon	524366	2/13/2002	Commercial
Petroleum- diesel fuel	14000 Interurban Ave S	1	sheen	525281	3/25/2002	Unknown
Petroleum- diesel fuel	5658 W Marginal Way	20	gallon	530029	11/5/2002	Vessel- other
Petroleum- diesel fuel	10160 W Marginal Pl S	10	gallon	530177	11/6/2002	Commercial
Petroleum- fuel oil	700 S Riverside Dr	10	gallon	427785	9/18/1997	Vessel- tug boat
Petroleum- fuel oil	500 S Myrtle St			501593	12/20/1998	Vessel- cargo
Petroleum- gasoline				423856	4/30/1996	Unknown
Petroleum- gasoline		50,000	gallon	425621	12/6/1996	Commercial
Petroleum- gasoline				426915	5/6/1997	Unknown
Petroleum- gasoline				427076	6/3/1996	Underground storage tank
Petroleum- gasoline		1	gallon	504900	6/28/1999	Vessel- tank barge
Petroleum- gasoline	Unk			528313	8/12/2002	Vessel- pleasure craft
Petroleum- hydraulic oil		25	gallon	422093	9/13/1995	Vessel- unknown
Petroleum- hydraulic oil				422194	9/27/1995	Vessel- unknown
Petroleum- hydraulic oil				422197	9/27/1995	Commercial
Petroleum- hydraulic oil		30	gallon	425623	12/10/1996	Vessel- pleasure craft
Petroleum- hydraulic oil	8th Ave Terminal	1	gallon	426057	2/10/1997	Commercial
Petroleum- hydraulic oil		10	gallon	426549	4/9/1997	Vessel- cargo

Material Description	Address	Quantity	Unit	Incident ID	Received Date	Source
Petroleum- hydraulic oil		10	gallon	429484	6/3/1998	Vessel- fishing
Petroleum- hydraulic oil				429807	7/16/1998	Commercial
Petroleum- hydraulic oil		2	gallon	502098	1/19/1999	Vessel- fishing
Petroleum- hydraulic oil	5900 W Marginal Way SW Lone Star Facility	2	quart	504128	5/12/1999	Commercial
Petroleum- hydraulic oil	1/2 Gallon of hydraulic spilled while Se	2	quart	504237	5/18/1999	Other
Petroleum- hydraulic oil		15	gallon	504244	5/12/1999	Vessel- fishing
Petroleum- hydraulic oil	5209 E Marginal Way S, Slip 1	5	gallon	505374	7/21/1999	Commercial
Petroleum- hydraulic oil	5900 W Marginal Way on dock at lonestar	3	gallon	505405	7/22/1999	Commercial
Petroleum- hydraulic oil	6701 Fox Ave S	1	quart	507660	11/12/1999	Vessel- unknown
Petroleum- hydraulic oil	1641 S 92nd Pl 98108, KRS Marine	2	gallon	507987	12/1/1999	Other
Petroleum- hydraulic oil	601 S Myrtle St	80	gallon	510299	4/10/2000	Manufacturer
Petroleum- hydraulic oil		20	gallon	517979	5/10/2001	Motor vehicle
Petroleum- hydraulic oil	5209 E Marginal Way S	3	gallon	519648	7/19/2001	Vessel- other
Petroleum- hydraulic oil		2	quart	522957	12/13/2001	Vessel- other
Petroleum- hydraulic oil	7319 4th Ave So	1	gallon	529478	10/9/2002	Vessel- tug boat
Petroleum- lube oil		5	gallon	422946	1/15/1996	Commercial
Petroleum- lube oil		10	gallon	424224	6/7/1996	Transportation-vehicle
Petroleum- lube oil	1801 16th Ave SW	1	gallon	427574	8/17/1997	Vessel- unknown
Petroleum- lube oil	5931 E Marginal Way S			527278	6/23/2002	Vessel- cargo
Petroleum- lube oil	Duwamish Waterway	3	gallon	528138	8/1/2002	Vessel- cargo
Petroleum- motor oil	720 S Orchard			528566	8/20/2002	Commercial
Unknown				423121	2/6/1996	Unknown
Unknown				424397	5/7/1996	Commercial
Unknown				424439	7/1/1996	Unknown
Unknown	10054 W Marginal Pl			426489	4/1/1997	Vessel- cargo
Unknown	1519 Alaskan Way USCG Office			427237	7/6/1997	Unknown
Unknown				500726	10/23/1998	Unknown
Unknown	4 blocks south of Spokane St			500851	10/24/1998	Transportation-vehicle
Unknown		220	gallon	502272	1/29/1999	Unknown
Unknown	0.8 Miles north of the Duwamish River He	1	sheen	505408	7/22/1999	Unknown
Unknown		1	sheen	505575	7/30/1999	Unknown

Material Description	Address	Quantity	Unit	Incident ID	Received Date	Source
Unknown				508905	1/17/2000	Unknown
Unknown				511953	6/30/2000	Vessel- cargo
Unknown		1	sheen	514151	10/19/2000	Unknown
Unknown	5900 West Marginal Way - Glacier Northwest			519174	6/28/2001	Vessel- cargo
Waste water				426885	5/27/1997	Commercial
Waste water		1,000	gallon	428260	11/25/1997	Commercial
Waste water	2-15 Bldg			428273	11/26/1997	Aboveground storage tank
Waste water		10	gallon	511483	6/7/2000	Vessel- cargo

Appendix F: Duwamish River Waste Disposal and Dredge Fill Sites

INTRODUCTION

This appendix contains figures showing location of waste disposal areas near the LDW that may have been sources of chemicals to groundwater, as identified by Sweet Edwards (1985). Descriptions of the sites are provided in a table following the figures.

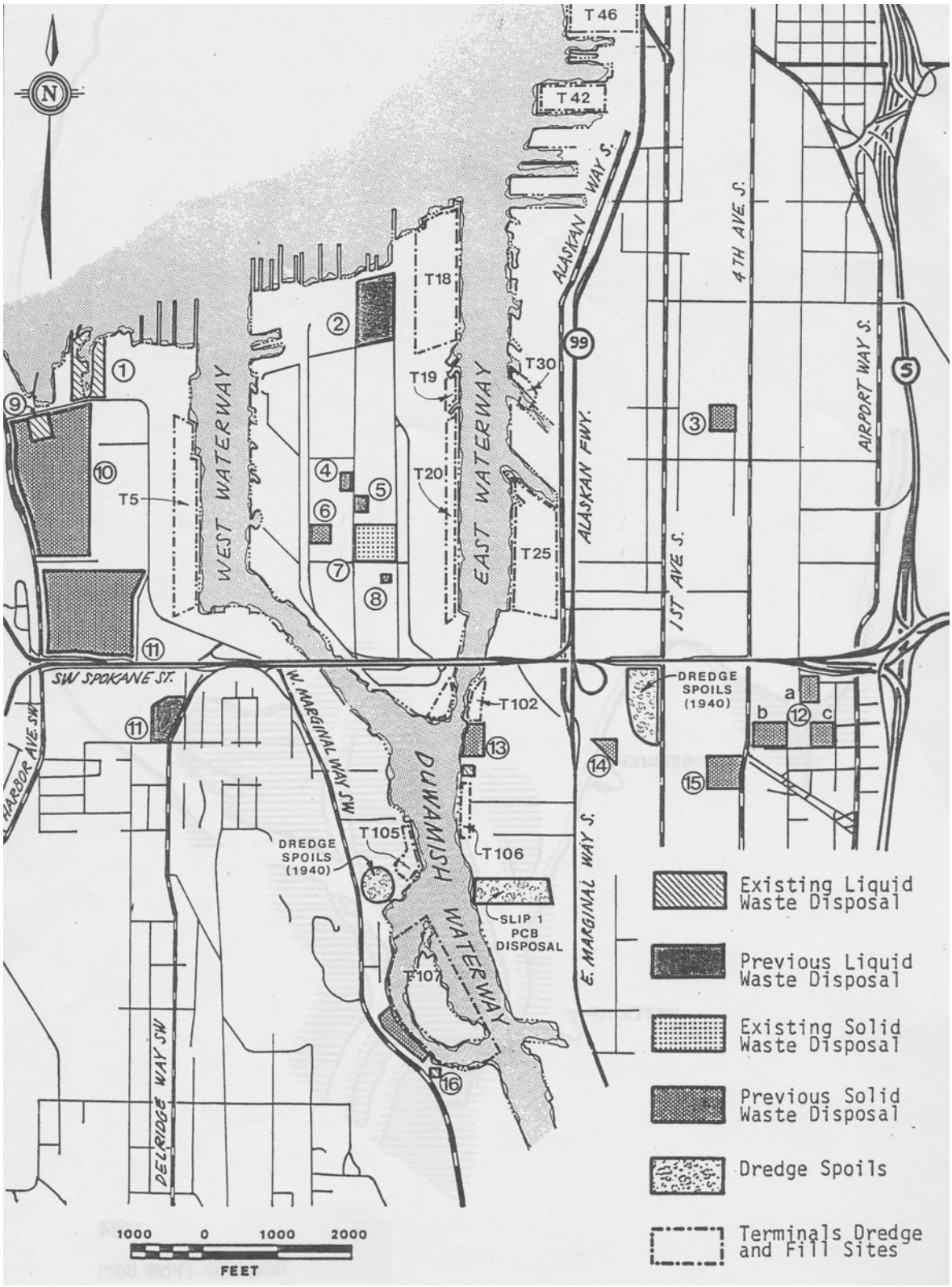


Figure F-1. North section

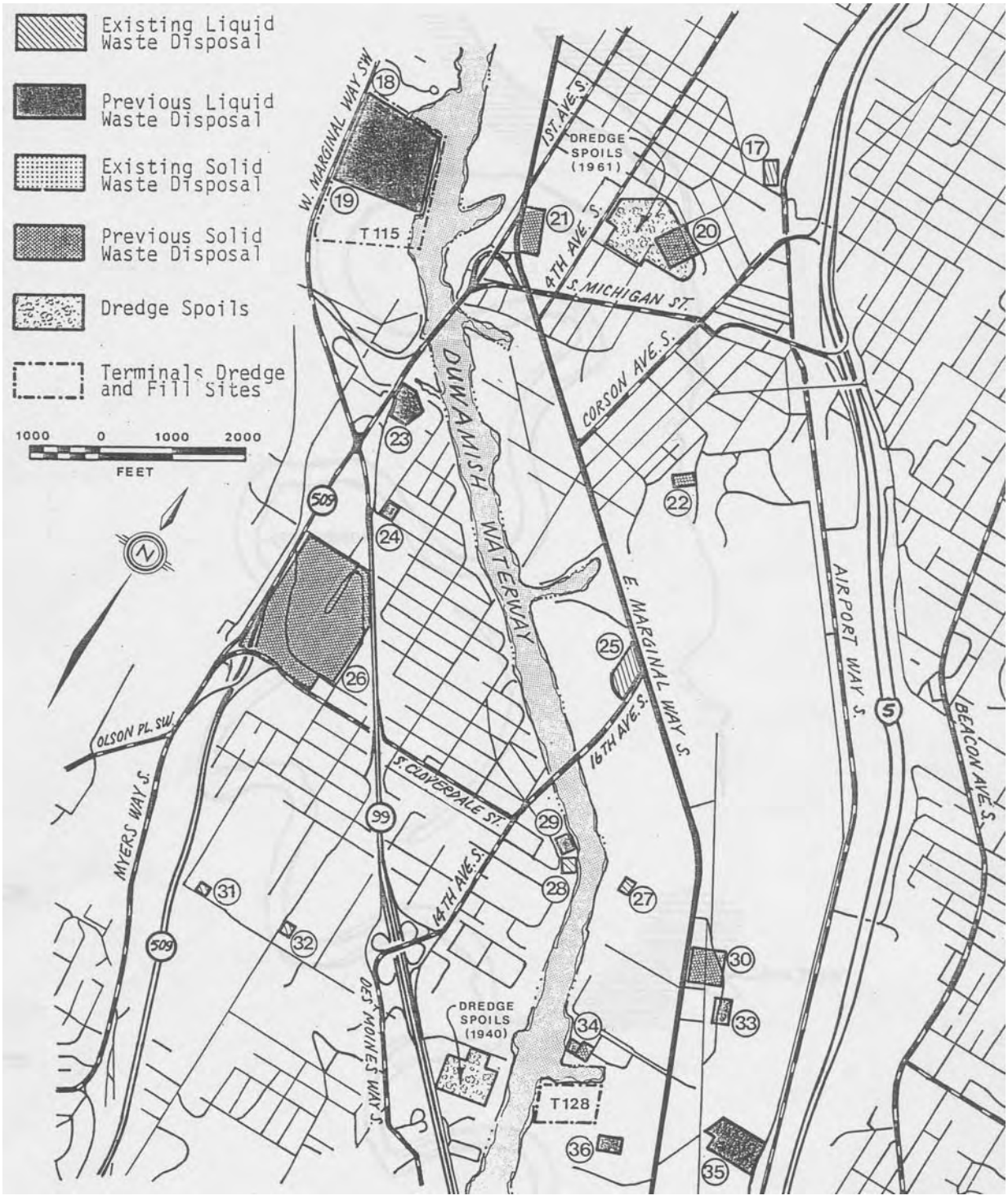


Figure F-2. Mid section

Figure F-3. South section

Table F-1. Waste sites identified as potential groundwater sources by Sweet Edwards (1985)

SITE NO.	NAME	DESCRIPTION
12	City of Seattle general refuse dumps	Sites were part of the City of Seattle general refuse dumps. Sites a and b were covered by commercial development by 1968. Site c served as an auto wrecking site.
13	Ash Grove Cement	Stormwater and wastewater from site was diverted to an unlined surge pond on the bank of the river.
14	Piles of material	Located adjacent to Puget Sound Fabricators facility and contained several piles of white-toned waste material
15a	Seattle City Light Substation	Site was used as a dump area for trash and other waste material and was covered by commercial development by 1968; location was adjacent to Duwamish substation which contained gravel oil retention sumps that collected non-PCB transformer runoff before being pumped directly into the Duwamish. Drainage from PCB capacitor banks drained directly onto the soil.
15b	Seattle City Light Georgetown Steamplant	This plant last operated in 1974. PCB equipment was never used, although sediment collected from a low-lying area on the property contained elevated concentrations of PCBs.
16	Ideal Cement Co.	Kiln and truck washdown were disposed of in a soaking pit/settling pond.
17	Chempro	Waste solvents were recycled and then stored in several underground tanks. The site contained numerous 55 gallon drums, most of which were stored on a concrete pad at north end of site.
18	MRI (MST Chemicals)	Two evaporative/seepage lagoons were used for disposal of the scrap processing wastewater until 1976. These unlined basins were 6 ft deep and received about 3,500 gallons of wastewater per week.
19	Reichold Chemical Company	The Reichold plant manufactured synthetic resins, formaldehyde, pentachlorophenols and hydrochloric acid. Highly toxic wastewater was discharged directly into the river until 1955, when temporary settling basins were used for wastewater disposal. The plant was closed in 1958.
20	Possible waste pit	Possible waste pit contained white-toned material. The site was covered by fill material and commercially and industrially developed by 1968.
21	Unnamed dump areas	Site consisted of two small dump areas covered by industrial development by 1961.
22	Unnamed small dump	Site was a small dump associated with a nearby industry and was covered by commercial development by 1961.
23	Northwest Cooperage Company	Old barrels and drums were reconditioned and repainted at this site. Several thousand drums were stored throughout the site and past spills were indicated.

SITE NO.	NAME	DESCRIPTION
24	Liquid Air Company	Wastewater from acetylene production was disposed of in ponds until 1979. Ponds were excavated and filled by 1984.
25	AirCo	This site contained two pits with white acetylene waste material. Most of the site was converted into a parking lot by 1961.
26	South Park Landfill	This site operated as the South Park Landfill and as a burning dump by the City of Seattle until 1962. An auto junkyard and two liquid waste disposal ponds were located on the site.
27	Jorgensen Steel	Three tanks were used for etching machine parts — two filled with 50% muriatic acid and one with rinse water. These tanks drained into a concrete-walled pit with a dirt bottom which was filled with limestone rocks. Uncovered metal scrap was stored on the unpaved yard.
28	Malarkey Asphalt	Asphalt and roofing tar were manufactured at the site. An unlined wastewater disposal pond on the bank of the river occasionally overflowed into the Duwamish.
29	A and B Barrel Company	About one ton a month of sodium hydroxide was used in reconditioning and repainting of used barrels and drums. Liquid waste, including oils, grease and sodium hydroxide, were discharged into a small pond which overflowed directly into the Duwamish.
30	Unnamed small industry	Site was a small industry with a stockpile of white material. The stockpile was reduced in 1961 and covered by parking lots in 1968.
31	Ace Galvanizing	Industry discharged into a yard catch basin which flows into a storm water collecting ditch.
32	Advance Electroplating	Rinsewater from chromium, copper, cadmium and nickel electroplating and galvanizing processes was discharged into a neutralizing pit which directly overflowed into a storm drain.
33	Kenworth Truck Company	Aluminum deoxidizing tank wastewater was disposed of on land approximately 2,000 feet from river.
34	Monsanto	Vanillin and resins were manufactured at the site. Several uncontained storage/processing tanks and a wastewater disposal pit were located on the site. Monsanto also operated a landfill at the Kenworth Truck Company, where 200 tons of waste containing 2% copper were deposited.
35	Unnamed petroleum distributor	Tanks on the site were contained, but aerial photography indicated past spills.
36	Unnamed site	This site contained at least 10 uncontained storage tanks in 1940. By 1980 tanks were removed and the site was paved,
37	Unnamed small industrial facility	Uncontained storage/processing tanks were present on the site.
38	Sunset Demolition	This landfill received solid wastes from Todd Shipyard and Jorgensen Steel. Wastes deposited include sandblasting and foundry sand and possibly fly ash. Runoff was reported to have high levels of copper, lead and chromium.