APPENDIX 2

Site Activity Report

Site Activity Report

This report is derived from the Hylebos Waterway Data Management System. The Site Activity Report lists activities that were identified and input to the database for each site during the document review. The report is arranged in alphabetical order by site name. For each activity associated with a site, the activity is displayed below the site name. The "Start Date" and "End Date" labels pertain to the duration of the activity and the "Current" label is checked if the reference source indicates that the activity is currently occurring.

The "Reference Information" box provides the location of the information and a description of the original source document, as follows:

- "Ecology Files" are files that were reviewed by the Allocation Team at the Washington Department of Ecology Southwest Regional Office in Olympia, WA. Copies of the relevant pages from these files were copied into the project files.

- "Kondrat Binders" are references that were collected in support of a report prepared by Robert Kondrat for NOAA. The number provided is the reference number assigned by Kondrat.

- "PRP Notebooks" are a set of notebooks containing a compilation of public information on Hylebos Waterway Potentially-Responsible Parties.

When information was found to be incomplete, the following default strategies were implemented. Beginning dates defaulted to the first day of the year (e.g., if only 1970 was provided, then 1/1/70 was used as the default date), and ending dates defaulted to the last day of the year (e.g., only 1970 provided, then 12/31/70 was the assigned default date). Similarily, when a month and year were provided, the year and month were retained, and the date was adjusted to either the first or the last day of that month. If no beginning or ending dates were provided, these were left blank.

Bracketed text (i.e. [text]) within the "Comments" area indicates a conclusion reached by the reviewer. Quotes around text (i.e. "text") indicated wording exactly from the referenced document.

Site Activity Report

3138 MARINE VIEW DR

Segment: 5 **Map Reference #** 51

Initiation of Activities: **End of Activities** **Notes:**

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
ASR USED AS FILL - AS, BBPH, BEPH, CD, CU, DMPH, DOPH, HG, NI, PAH, PB, PCB, ZN			☐				
PETROLEUM LEAKS/SPILLS - PAH			☐				
UST DIESEL - PAH	12/3/92		☐	1	?	?	

Comments: Automobile Shredder Residue was discovered at two locations on site. The Southwest area contains "approximately 1300 cubic yards", while the Northeast area contains "approximately 200 cubic yards.". Refuse was to be removed and disposed of.

Reference: Landau Associates, Inc. and SEACOR, 2/27/91, Ref. ID. 267

Comments: Oil stained soil and oily sawdust was discovered on site along with numerous crushed drums, which had been buried on site.

Reference: Landau Associates, Inc, 10/30/91, Ref. ID. 266

Comments: A buried tank was discovered during the excavation of a utility trench. On 11/30/92 a Port of Tacoma inspector visited the site and observed "about a foot of liquid in the bottom of the tank." and that "it did not appear that the tank was leaking.". Lab analysis of the tank contents showed it to be composed of primarily waste water with traces of gasoline, diesel, and heavy oil.

Reference: Sacha, Leslie, 12/4/92, Ref. ID. 265

AIRO SERVICES

Segment: 4 **Map Reference #** 42

Initiation of Activities: **End of Activities** **Notes:** 1954-1974 Bay Zinc operations. Airo Services has been operating an oil recycling and tank cleaning facility on site since 1978.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
AST WASTE OIL - PAH			☐		?	W	
PETROLEUM LEAKS/SPILLS - PAH			☐				
PETROLEUM TRANSPORTING AND STORAGE IN LEAKING CONTAINERS/DRUMS - PAH			☐				
STORAGE AND/OR RECYCLING OF WASTE OILS CONTAINING PCBs - PAH, PCB			☐				

Comments: Oil from vacuum trucks stored in aboveground storage tanks.

Reference: Rozmyn, Lisa, Marilou Pivirotto and Marc Pacifico, 3/21/00, Ref. ID. 205

Comments: Stormwater in contact with petroleum products allowed to discharge to storm drains.

Reference: Rozmyn, Lisa, Marilou Pivirotto and Marc Pacifico, 3/21/00, Ref. ID. 205

Comments: Leaking drums on -site contain petroleum products.

Reference: Rozmyn, Lisa, Marilou Pivirotto and Marc Pacifico, 3/21/00, Ref. ID. 205

Comments: In receiving waste oils from many sources, rogue shipments of PCB contaminated oils would have been received on a more likely than not basis. Received oils were not tested or manifested on a routine basis.

Reference: Rozmyn, Lisa, Marilou Pivirotto and Marc Pacifico, 3/21/00, Ref. ID. 205

ZINC SULFATE USE - ZN 3/1/59 3/1/59 ☐

Comments: One time release of concentrated zinc sulfate to waterway. Material highly soluble in this form. Release resulted in large fish kill.

Reference: Camp, Jr., Richard J, 9/17/93, Ref. ID. 204

AK-WA SHIPBUILDING

Segment: 5 **Map Reference #** 56

Initiation of Activities: 1/1/1917 **End of Activities** **Notes:** Began shipyard operations in 1917.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
ARSENIC TREATED DRYDOCK - AS			☐				
Comments: Dry-dock is treated with arsenic to prevent teredo worm injury. The EPA considered the dry-dock as a potential source of contamination.							
Reference: Nelson, Ruth A, 9/16/86, Ref. ID. 120							
AST WASTE OIL - PAH			☐	1	2,500 gal.	W	
Comments: 2500 gallon aboveground steel tank used to store used oil and oily water. Tank was pumped by recycler when full.							
Reference: AK-WA Shipbuilding, Unknown Date, Ref. ID. 121							
AST WASTE OIL - PAH			☐	1	2,000 gal.	W	
Comments: 2000 gallon permanent aboveground tank for waste oil storage.							
Reference: Giannotti Corporation, 1/29/97, Ref. ID. 123							
AST WASTE OIL - PAH			☐	1	300 gal.	W	
Comments: 300 gallon portable waste oil tank.							
Reference: Giannotti Corporation, 1/29/97, Ref. ID. 123							
AST WASTE OIL - PAH			☐	1	800 gal.	W	
Comments: 800 gallon portable waste oil tank.							
Reference: Giannotti Corporation, 1/29/97, Ref. ID. 123							
HYDRAULIC OIL LEAKAGE/SPILLS - PAH			☐				
Comments: Air compressors and heavy equipment known to leak lube oils into the stormwater system.							
Reference: State of Washington Department of Ecology, May 1991, Ref. ID. 119							
MALFUNCTIONING OIL/WATER SEPARATOR - PAH			☐				
Comments: Ship's oil/water separator failed causing oil from bilge to be released during bilge pumpout. Approximately 10 gallons of used oil released.							
Reference: Becker, Rocky, 6/19/95, Ref. ID. 128							
PAINTING BOATS OR MARINE VESSELS - CR, CU, PB, TBT, ZN			☐				
Comments: [Although the exact metal content of the paints used on this site were not specified, copper, chromium, lead, zinc, and TBT based paints are typically used for application to marine vessels.]							
Reference: Allocation Team, NA, Ref. ID. 278							
PCB'S FROM SHIP MAINTENANCE - PCB			☐				
Comments: [AK/WA Shipyards operated during a period in which ships with PCB's onboard would have been serviced.]							
Reference: U.S. Environmental Protection Agency, November 1997, Ref. ID. 122							

PETROLEUM LEAKS FROM SHIP MAINTENANCE & REPAIRS - PAH ☐
Comments: 50 gallons of diesel spilled into Hylebos from stern tube leak.
Reference: Manning, Brett (State of Washington Department of Ecology), 5/15/91, Ref. ID. 170

PETROLEUM LEAKS FROM SHIP MAINTENANCE & REPAIRS - PAH ☐
Comments: 100 gallons of oil released from ship in dry-dock.
Reference: Duerr, Miriam (State of Washington Department of Ecology), 2/20/95, Ref. ID. 127

PETROLEUM LEAKS FROM SHIP MAINTENANCE & REPAIRS - PAH ☐
Comments: 15-20 gallons of oil released from compressor into the Hylebos.
Reference: Duerr, Miriam (State of Washington Department of Ecology), 2/20/95, Ref. ID. 127

PETROLEUM LEAKS FROM SHIP MAINTENANCE & REPAIRS - PAH ☐
Comments: Large fuel oil spill of approximately 17,000 gallons. It was estimated that 15,200 gallons were recovered.
Reference: Becker, Rocky, 4/24/89, Ref. ID. 129

PETROLEUM LEAKS FROM SHIP MAINTENANCE & REPAIRS - PAH ☐
Comments: Oil from bilge released to Hylebos when seam split in ship's hull
Reference: Robison, Ron, 3/5/70, Ref. ID. 134

PETROLEUM LEAKS FROM SHIP MAINTENANCE & REPAIRS - PAH ☐
Comments: Oily water from storage tank discharged to Hylebos.
Reference: Robison, Dan, 9/14/72, Ref. ID. 133

PETROLEUM LEAKS FROM SHIP MAINTENANCE & REPAIRS - PAH ☐
Comments: 20 gallons of diesel released from pump truck. 98% of material recovered. Unsure if release to Hylebos occurred.
Reference: Becker, Rocky, December 1992, Ref. ID. 125

PETROLEUM LEAKS FROM SHIP MAINTENANCE & REPAIRS - PAH ☐
Comments: 126 gallons of fuel oil spilled during transfer
Reference: USCG, March 1975, Ref. ID. 132

PETROLEUM LEAKS FROM SHIP MAINTENANCE & REPAIRS - PAH ☐
Comments: 3000 gallons of diesel spilled into Hylebos from heavily damaged ship during dry-docking process.
Reference: Becker, Rocky, 8/24/89, Ref. ID. 168

PETROLEUM LEAKS FROM SHIP MAINTENANCE & REPAIRS - PAH ☐
Comments: 20 gallons of diesel released into the storm drain.
Reference: Warren, Robert, 10/26/89, Ref. ID. 130

PETROLEUM LEAKS FROM SHIP MAINTENANCE & REPAIRS - PAH ☐
Comments: 5 gallons of gear oil leaked into Hylebos due to overfill of capstan.
Reference: James, Cindy, 9/26/90, Ref. ID. 131

PETROLEUM LEAKS/SPILLS - PAH 11/1/93 1/31/94 ☐
Comments: From the information contained within the reference, [it seems likely that small spills and poor housekeeping practices allowed petroleum to flow from the paved surfaces into the stormwater system that led to the Hylebos Waterway.]
Reference: Becker, Rocky, 2/17/94, Ref. ID. 114

PRESSURE WASHING OF PAINTED BOATS OR VESSELS - CR, CU, HG, PAH, PB, TBT, ZN ☐
Comments: Hydroblasting was used to clean vessels. Copper and zinc were primary contaminants.
Reference: AK-WA Shipbuilding, Unknown Date, Ref. ID. 121

SANDING OR SANDBLASTING OF PAINTED BOATS OR VESSELS - AG, AS, CD, CR, CU, HG, NI, PAH, PB, SB, TBT, ZN ☐
Comments: Copper and Nickel based slag was used to sandblast and strip hulls of paint prior to repainting.
Reference: Hart Crowser, 1/9/97, Ref. ID. 115

SHIP DISMANTLING - PAH, PCB 1/1/60 6/30/75 ☐ W, D
Comments: Ship dismantling occurred on this site between 1960 and the mid 1970's under the direction of Zidell Marine Corporation. "Lubricating oils, diesel fuels, and other used oil which may have been recovered from ships were sold by Zidell to recyclers or users. Mr. Jack Zidell recalls one specific sale of 800,000 gallons of used marine oil to Fletcher Oil Company, also then of Tacoma, Washington."
Reference: McCain, Richard J, 11/18/92, Ref. ID. 323

STORAGE OF SPENT SANDBLASTING GRIT (COPPER SLAG) - AG, AS, CD, CR, CU, HG, NI, PB, SB, TBT, ZN ☐
Comments: Spent grit was exposed to stormwater and entered the waterway as grit.
Reference: Hart Crowser, 1/9/97, Ref. ID. 115

STORAGE OF SPENT SANDBLASTING GRIT (NICKEL SLAG) - NI ☐
Comments: Spent grit was exposed to stormwater and entered the waterway as grit.
Reference: Becker, Rocky, 8/24/89, Ref. ID. 168

AOL EXPRESS

Segment: 4 **Map Reference #** 79

Initiation of Activities: **End of Activities** **Notes:** Lindal Cedar Homes operated at least from 1972 until 1982. May have been there as early as 1930. After 1982, AOL Express or affiliates operated.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
AST DIESEL - PAH			☐	1	?	D	
Comments: Spillage around fittings of above ground diesel tank.							
Reference: Baroga, Enrico, 8/13/85, Ref. ID. 207							
AST WASTE OIL - PAH			☐			W	
Comments: Above ground waste oil storage tank shows sign of overspillage to the ground.							
Reference: Baroga, Enrico, 8/13/85, Ref. ID. 207							
UST GASOLINE - PAH			☐			G	
Comments: Gasoline contaminated soil and water during tank removal.							
Reference: Dames & Moore, 3/29/99, Ref. ID. 208							

B&L WOODWASTE LANDFILL

Segment: 1 **Map Reference #** 8

Initiation of Activities: 1/1/78 **End of Activities** 12/31/93 **Notes:** Landfill operated from 1978 until 1982. Remediation occurred in 1993

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
ASARCO SLAG STORAGE OR LANDFILLING - AS, CD, CU, PB, SB, ZN	1/1/73		☐				
Comments: Waste material from log sort yards, yard soils, and gravel sized-rocks (including ASARCO slag), were deposited at the landfill.							
Reference: State of Washington Department of Ecology, October 1991, Ref. ID. 32							
ASR USED AS FILL - AS, BBPH, BEPH, CD, CU, DMPH, DOPH, HG, NI, PAH, PB, PCB, ZN	1/1/80		☐				
Comments: Three shipments of shredded upholstery from General Metals of Tacoma were dumped at the site.							
Reference: State of Washington Department of Ecology, 6/17/92, Ref. ID. 31							

BONNEVILLE POWER

Segment: 1 **Map Reference #** 15

Initiation of Activities: 1/1/42 **End of Activities** **Notes:** Vacant prior to 1942. BPA substation after 1942 until present.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
LANDFILLING U.S. GYPSUM BAGHOUSE DUST - AS, CD, CR, CU, PB, SB, ZN			☐				
Comments: Describes the presence of grit-like debris or "shot" and baghouse dust reportedly placed on Eastern end of property by others (not BPA).							
Reference: Staff Writers, 8/20/96, Ref. ID. 13							
PCB TRANSFORMER USE - PCB	1/1/42		☐				
Comments: The sites electrical substation activities include the use of PCB containing transformers.							
Reference: Sander, Stephen R, 9/15/93, Ref. ID. 12							
UST GASOLINE - PAH	1/1/42	12/31/88	☐	1	?	G	
Comments: Operated a gasoline UST of unknown capacity.							
Reference: Sander, Stephen R, 9/15/93, Ref. ID. 12							

BUFFELEN

Segment: 3 **Map Reference #** 28

Initiation of Activities: 1/1/1913 **End of Activities** **Notes:** Buffelen developed the site in 1913 and has occupied it since. Primarily used for the manufacturing of doors, plywood, and millwork.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
DISCHARGE OF MACHINE SHOP METAL SHAVINGS - CR, CU, NI			☐				
Comments: Reports of metal shaving [presumably from the machine shop] being swept directly into the Hylebos.							
Reference: State of Washington Department of Ecology, 9/19/78, Ref. ID. 83							
HYDRAULIC OIL LEAKAGE/SPILLS - PAH	5/6/80	5/6/80	☐				
Comments: Compressor broke causing oil spill into the Hylebos.							
Reference: Guizzetti, Joe D, 6/23/89, Ref. ID. 110							

HYDROCARBON BASED WOOD PRESERVATIVE USE/STORAGE - PAH, PCP 1/1/50 12/31/86 ☐

Comments: To prevent the decay of their products, wood was treated with a solution containing PCP which was dissolved into a hydrocarbon carrier solvent such as oil, diesel, or kerosene. (began using in the 1950's).

Reference: Hart Crowser, 7/28/89, Ref. ID. 82

PCB TRANSFORMER USE - PCB ☐

Comments: Electrical Substation shown in map of Buffelen site.

Reference: Buffelen Woodworking, 12/21/71, Ref. ID. 263

CASCADE TIMBER (YARD #1)

Segment: 3 **Map Reference #** 27

Initiation of Activities: 1/1/67 **End of Activities** 12/31/81 **Notes:** Aerial photos show the site undeveloped as late as 1946. Puget Sound Tug and Barge and Kewanee Oil past owners from 1957 until 1966. Cascade Timber operated a log sort yard from 1967-1981. The site was likely vacant since 1981.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
ASARCO SLAG USED AS BALLAST ON LOG SORT YARD - AS, CD, CU, DMP, PB, SB, ZN	1/1/77	10/8/93	☐				

Comments: ASARCO slag used as ballast for log sorting operations. Approximately 1,600 tons of slag was deposited on site between 1977 and 1981. Under a consent decree order, the slag materials were removed.

Reference: Mercuri, Joyce, 3/4/93, Ref. ID. 93

LOG SORT YARD WITHOUT ASARCO SLAG USED AS BALLAST - DMP 1/1/65 12/31/76 ☐

Comments: Site has been used for log sorting since 1965 without the use of ASARCO slag as ballast.

Reference: Mercuri, Joyce, 3/4/93, Ref. ID. 93

CENEX AG

Segment: 4 **Map Reference #** 50

Initiation of Activities: **End of Activities** **Notes:** Start date not clear, possibly as early as 1946 definitely since 1982.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
PCB TRANSFORMER USE - PCB			☐				

Comments: Transformer present with stained soils in transformer enclosure.

Reference: Kleinfelder, Inc, 8/12/92, Ref. ID. 201

PCB TRANSFORMER USE - PCB ☐

Comments: PCB containing transformers were removed from property in 1980's.

Reference: Baker, David, 4/28/93, Ref. ID. 200

STORAGE OF LEAD BATTERIES - PB ☐

Comments: Union Battery stored waste batteries in a building. Batteries likely had leaked into the floor drains which likely drain to the stormwater system.

Reference: Herold, Coleman, 3/25/92, Ref. ID. 202

UST DIESEL - PAH 12/31/91 ☐ 7 ? D?

Comments: The reference states that 7 UST's were removed from the Site in 1991. The contents and size of tank #1 were not disclosed. Diesel range petroleum hydrocarbons were detected in almost every excavation pit.

Reference: Kleinfelder, Inc, 8/12/92, Ref. ID. 201

CITY OF TACOMA (#1)

Segment: 4 **Map Reference #** 95

Initiation of Activities: **End of Activities** **Notes:**

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
PCB TRANSFORMER USE - PCB			☐				
Comments: Electrical substation on SE corner of lot.							
Reference: Woodward-Clyde Consultants, 5/16/91, Ref. ID. 206							
PETROLEUM LEAKS/SPILLS - PAH			☐				
Comments: Fill material (Railroad ballast) from the City of Tacoma (Steam Plant) site that was contaminated with grease and crankcase oil.							
Reference: Woodward-Clyde Consultants, 5/16/91, Ref. ID. 206							

CITY OF TACOMA (STEAM PLANT)

Segment: 4 **Map Reference #** 44

Initiation of Activities: 1/1/30 **End of Activities** **Notes:** Steam plant operated beginning in 1930

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
ASARCO SLAG STORAGE OR LANDFILLING - AS, CD, CU, PB, SB, ZN			☐				
Comments: ASARCO slag was used in RR ballast and was stockpiled on site.							
Reference: Gooding, Lynn, 4/4/91, Ref. ID. 189							
AST BUNKER C - PAH	1/1/49	12/31/73	☐	1	600,000 gal.	B/D	
Comments: In 1949, boilers were modified to use Diesel #6. A 600,000 gallon storage tank was removed in 1973.							
Reference: Ebasco Plant Services, Inc, November 1988, Ref. ID. 186							
AST DIESEL - PAH			☐	1	?	D	
Comments: Diesel fuel from AST was being dripped and spilled to the ground.							
Reference: Gooding, Lynn and Megan White, 3/19/91, Ref. ID. 190							
BARK/WOODCHIP STORAGE (NO ASARCO SLAG) - DMP			☐				
Comments: Bark pile extended over stormwater control berms defeating site controls for preventing bark leachate from entering the waterway.							
Reference: Powers, Suzanne, et. al., 5/9/90, Ref. ID. 187							
PCB TRANSFORMER USE - PCB			☐				
Comments: Oil filled breakers were known to contain PCBs							
Reference: Post, Russell, 9/20/93, Ref. ID. 188							
PETROLEUM LEAKS/SPILLS - PAH			☐				
Comments: Railroad ballast contaminated with grease and crankcase oil blowby.							
Reference: Post, Russell, 9/20/93, Ref. ID. 188							
UNCOVERED COAL STORAGE - PAH			☐				
Comments: Coal pile extended over stormwater control berms defeating site controls for preventing coal from entering the waterway.							
Reference: Powers, Suzanne, et. al., 5/9/90, Ref. ID. 187							

UNCOVERED COAL STORAGE - PAH ☐

Comments: Berm for coal pile was breached and was releasing coal to the swale leading to Hylebos.

Reference: Gooding, Lynn and Megan White, 3/19/91, Ref. ID. 190

UNCOVERED COAL STORAGE - PAH 1/1/31 1/1/49 ☐

Comments: In 1931, coal was used to fire boiler.

Reference: Ebasco Plant Services, Inc, November 1988, Ref. ID. 186

DON OLINE AUTOFLUFF SITE

Segment: 3 **Map Reference #** 23

Initiation of Activities: 1/1/72 **End of Activities** **Notes:** From 1972-75, ASR was used as fill in intertidal areas. Consent Decree signed 1997 regarding site remediation plans. Remediation in late 90's?

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
ASR USED AS FILL - AS, BBPH, BEPH, CD, CU, DMPH, DOPH, HG, NI, PAH, PB, PCB, ZN	1/1/72		☐				

Comments: ASR from General Metals used as fill to create uplands and to level the intertidal beach slope. Site investigations estimate approximately 1,230 cubic yards deposited on upland area of site, with an additional 90 cubic yards estimated in the intertidal area. [The ASR is located such areas as to be subject to surface water contact, groundwater contact, and direct erosion via wave and tidal actions].

Reference: EMCON Northwest, Inc, 1/26/95, Ref. ID. 92

DUNLAP TOWING

Segment: 2 **Map Reference #** 20

Initiation of Activities: 1/1/64 **End of Activities** 12/31/86 **Notes:** Pennwalt purchased property from Milwaukee Boom Co. in 1957. Various log sort leases occurred from 1964-1986. Unoccupied since 1986.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
ASARCO SLAG USED AS BALLAST ON LOG SORT YARD - AS, CD, CU, DMP, PB, SB, ZN	1/1/75	12/31/86	☐				

Comments: Between 1975 and 1986 approximately 2300 tons of ASARCO slag was deposited on the site and used as ballast.

Reference: State of Washington Department of Ecology, December 1991, Ref. ID. 213

HYDRAULIC OIL LEAKAGE/SPILLS - PAH 11/12/87 11/12/87 ☐

Comments: Hydraulic oil was found on the surface of the log sort yard along with empty drums scattered on site.

Reference: Stefan, F, 11/24/87, Ref. ID. 214

LOG SORT YARD WITHOUT ASARCO SLAG USED AS BALLAST - DMP 1/1/64 12/31/74 ☐

Comments: Conducted log sorting, chipping, debarking, and processing on-site which generated woodwaste.

Reference: State of Washington Department of Ecology, 12/11/92, Ref. ID. 70

PETROLEUM LEAKS/SPILLS - PAH 12/10/84 12/10/84 ☐

Comments: A WDOE environmental complaint reported an oil spill "2 weeks ago" which "was originally to ground," but reached a "drainage ditch."

Reference: Cook, K. (State of Washington Department of Ecology), 12/10/84, Ref. ID. 215

PETROLEUM LEAKS/SPILLS - PAH 4/9/87 4/9/87 ☐

Comments: WDOE inspector found wood chips covering former spills leading to the Kaiser ditch, and a diesel fuel tank on the bank of the Hylebos "actively dripping" diesel fuel into the waterway.

Reference: State of Washington Department of Ecology, Unknown Date, Ref. ID. 217

PETROLEUM LEAKS/SPILLS - PAH 4/19/85 4/19/85 ☐

Comments: The reference states that upon investigation by WDOE inspectors, a 1,000 gallon diesel tank, seven 55-gallon lubricant oil drums with spigots (one leaking at time of inspection), and a shed with a workshop and oily floors were found. Attempts were made to contain the spill, however, it was stated that rain transported oil down to the drainage ditch.

Reference: Pierce, Richard (State of Washington Department of Ecology), 4/18/85, Ref. ID. 216

ELF ATOCHEM

Segment: 2 **Map Reference #** 19

Initiation of Activities: 1/1/1928 **End of Activities** **Notes:** Chlorine plant first built in 1928. Various other Elf or predecessor activities up to present day.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
AST BUNKER C - PAH			☐	3	?	B	

Comments: Oil-soaked soils were encountered during the demolition of three large welded steel above ground storage tanks located at the Wypenn area in 1995. The tanks had been used to store Bunker C oil temporarily during the 1970's.

Reference: Wolf, Fredrick and Rodgers, William, 4/20/01, Ref. ID. 238

CHLORINE MANUFACTURING BY ELF - CR, CU, HCB, HCBD, NI, TCB 1/1/29 ☐

Comments: In 1975, a WDOE official noted that the caustic soda evaporation system was a source of nickel in the Pennwalt effluent.

Reference: State of Washington Department of Ecology, Unknown Date, Ref. ID. 222

CHLORINE MANUFACTURING BY ELF - CR, CU, HCB, HCBD, NI, TCB 1/1/29 ☐

Comments: The reference states that wastewater (indirectly discharged to the Hylebos) from the sodium chlorate plant was classified as a dangerous waste due to it's association with the process waste sludge, which contained more than 5 ppm of hexavalent chromium.

Reference: Kennedy/Jenks/Chilton, Inc, March 1989, Ref. ID. 223

CHLORINE MANUFACTURING BY ELF - CR, CU, HCB, HCBD, NI, TCB 1/1/29 ☐

Comments: The reference states, "The use of lead and graphite anodes and asbestos diaphragms generates lead, asbestos, and chlorinated hydrocarbons in the caustic soda and chlorine processing waste streams"

Reference: Derieux, Walter, September 1995, Ref. ID. 221

CHLORINE MANUFACTURING BY ELF - CR, CU, HCB, HCBD, NI, TCB 1/1/29 ☐

Comments: Copper was used to carry electrical current in process cells, and a fact sheet on the plant's NPDES permit noted that copper could be introduced into the effluent as a result of upsets or equipment failures.

Reference: State of Washington Department of Ecology, Unknown Date, Ref. ID. 220

MANUFACTURING PENITE - AG, AS, CD, CU, HG, PB, SB, ZN 1/1/40 12/31/71 ☐

Comments: A 1996 SECOR International investigation found that dissolved metals entered both the product, sodium arsenite, and the diatomaceous earth filter cake, including "abundant amounts" of antimony, copper, lead, and mercury, which "could be released from the filter cake sludge into the waterway." Filter cake sludge was landfilled on-site.

Reference: SECOR International, Inc, 4/9/96, Ref. ID. 112

MERCURY ARC RECTIFIER OPERATION - HG ☐

Comments: A Newspaper article from 1948 documented the use of a Mercury Arc Rectifier station for use in the electrolytic cell operations.

Reference: Hunt, Katherine (Tacoma News Tribune), 2/17/48, Ref. ID. 225

PCB TRANSFORMER USE - PCB ☐

Comments: Exact number of transformers used on site is unavailable. However, In 1986, Elf Atochem disposed of one PCB transformer and 144 capacitors to the General Electric company.

Reference: Edquist, Paul (Pennwalt), 3/13/86, Ref. ID. 219

PETROLEUM LEAKS/SPILLS - PAH 10/7/86 10/7/86 ☐
Comments: During cleanup activities near a storage tank and sump pump, an unknown quantity of bunker c oil was discharged through the sump pump directly to the outfall to the waterway.
Reference: Willey, Dan (State of Washington Department of Ecology), 10/7/86, Ref. ID. 228

PETROLEUM LEAKS/SPILLS - PAH 2/9/82 2/9/82 ☐
Comments: Two hundred to three hundred gallons of bunker c oil were spilled inside the plant, with less than one gallon estimated to have reached the waterway.
Reference: Maibauer, William (State of Washington Department of Ecology), 1/8/86, Ref. ID. 226

PETROLEUM LEAKS/SPILLS - PAH 1/8/86 1/8/86 ☐
Comments: Oil from an unknown source spilled into an excavation pit while working on a sewer line. An estimated two quarts to a gallon flowed out into the Hylebos.
Reference: Maibauer, William (State of Washington Department of Ecology), 1/8/86, Ref. ID. 226

PRODUCTION OR REPACKAGING OF DDT - DDD, DDE, DDT 1/1/46 ☐
Comments: There is evidence that the plant was involved in the production or repackaging of pesticides beginning in the 1940's.
Reference: Technical Assistance Team (U.S. Environmental Protection Agency), 2/1/85, Ref. ID. 224

GENERAL METALS OF TACOMA

Segment: 2 **Map Reference #** 16

Initiation of Activities: 1/1/65 **End of Activities** **Notes:** Metals recycling started in 1965. General Metal first leases property in 1981, later purchases property.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product

ASARCO SLAG STORAGE OR LANDFILLING - AS, CD, CU, PB, SB, ZN ☐
Comments: Landfilling of ASARCO slag derived sandblast grit near the bank of the waterway.
Reference: U.S. Environmental Protection Agency, 1/25/93, Ref. ID. 79

ASR GENERATION/STORAGE - AS, BBPH, BEPH, CD, CU, DMPH, DOPH, HG, NI, PAH, PB, PCB, ZN 1/1/65 ☑
Comments: "Automobile shredder residue is a by product of the metal recycling operations at General Metals. It has been generated at the site since the shredder was installed in the late 1960's. It consists of ground up non-recyclable parts of cars, appliances and other equipment that is processed through the hammermill. It consists of metal, rubber and plastic and has a dirt-like appearance. Approximately 100 tons of ASR were generated each day."
Reference: General Metals, 9/7/93, Ref. ID. 76

HYDRAULIC OIL LEAKAGE/SPILLS - PAH ☐
Comments: A WDOE inspector reported a large crane on the site that was leaking hydraulic fluid "profusely."
Reference: White, Megan (State of Washington Department of Ecology) et al., 6/21/89, Ref. ID. 248

OCCIDENTAL RECLAMATION FILL - HCB, HCBD, MDCB, ODCB, PB, PDCB, TCB 1/1/72 12/31/77 ☐
Comments: A portion of the property was used for the disposal of Occidental Chemical corporation sludge pond wastes.
Reference: Tetra Tech, Inc, 8/1/85, Ref. ID. 327

PCB TRANSFORMER USE - PCB 1/1/65 3/24/87 ☐
Comments: "Ten transformers associated with PCB were used on the site until 1987. There were 3 units in the maintenance building and the shear (4 units). Three additional inactive units were stored for future use near the main office. The transformers were removed after an EPA inspection on 03/24/87. The total weight of the materials removed, including transformers, PCB, oil, debris) was 40,740 pounds."
Reference: General Metals, 9/7/93, Ref. ID. 76

PETROLEUM LEAKS/SPILLS - PAH 3/6/90 3/6/90 ☐
Comments: A spill of 15-20 gallons of diesel was release to the waterway when a refueling pod was being moved by a crane from the dock to a ship.
Reference: General Metals of Tacoma, Unknown Date, Ref. ID. 241

PETROLEUM LEAKS/SPILLS - PAH 7/13/89 7/13/89 ☐
Comments: WDOE inspection states that 20 gallons of diesel had been spilled on the north side of the site.
Reference: White, Megan (State of Washington Department of Ecology) et al., 6/21/89, Ref. ID. 248

PETROLEUM LEAKS/SPILLS - PAH ☐
Comments: Surface water from the site transported PAH's from spilled gasoline(leaded and unleaded), diesel, hydraulic fluids, lubricants, and heating oil to the waterway.
Reference: U.S. Environmental Protection Agency, 1/25/93, Ref. ID. 79

PETROLEUM LEAKS/SPILLS - PAH ☐
Comments: Gasoline from scrap automobiles is released directly onto the soil.
Reference: General Metals of Tacoma, Unknown Date, Ref. ID. 241

RECYCLING OF PCB TRANSFORMERS - PCB ☐
Comments: The referenced PCB Inspection Narrative indicates that General Metals actively recycled PCB contaminated transformers at their Tacoma facility. Included in the report are details pertaining to numerous shipments of these transformers, there fate, and the general practices associated with their handling. No dates of these operations were provided except the date associated with the inspection.
Reference: State of Washington Department of Ecology, 5/19/83, Ref. ID. 288

SHIP DISMANTLING - PAH, PCB 8/29/75 ☐ W
Comments: Ship dismantling activities were conducted on-site, which included the handling of waste oils from the scraped vessels.
Reference: Oberlander, Jim, 8/29/75, Ref. ID. 320

STORAGE OF LEAD BATTERIES - PB 1/1/65 ☐
Comments: "Lead batteries that were incidentally or inadvertently received with incoming scrap automobiles were stored on the property. They were disposed at a battery recycler."
Reference: General Metals, 9/7/93, Ref. ID. 76

VEHICLE RECYCLING - AS, BBPH, BEPH, CD, CU, DMPH, DOPH, HG, NI, PAH, PB, PCB, ZN 1/1/65 ☑
Comments: Recycling of ferrous scrap metal including automobiles, railroad cars, and locomotives.
Reference: General Metals, 9/7/93, Ref. ID. 76

HYLEBOS MARINA

Segment: 3 **Map Reference #** 22

Initiation of Activities: 1/1/62 **End of Activities** **Notes:** Marina opened in 1962 and was used primarily as a marine boat yard and for equipment storage.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
PAINTING BOATS OR MARINE VESSELS - CR, CU, PB, TBT, ZN	1/1/62		☐				

Comments: [Although the exact metal content of the paints used on this site were not specified, copper, chromium, lead, zinc, and TBT based paints are typically used for application to marine vessels.]
Reference: Allocation Team, NA, Ref. ID. 278

PRESSURE WASHING OF PAINTED BOATS OR VESSELS - CR, CU, HG, PAH, PB, TBT, ZN 1/1/62 ☐
Comments: Pressure wash water tested positive for copper and zinc.
Reference: Getchell, Christopher L, 12/23/86, Ref. ID. 91

SANDING OR SANDBLASTING OF PAINTED BOATS OR VESSELS - AG, AS, CD, CR, CU, HG, NI, PAH, PB, SB, TBT, ZN — 1/1/62 — ☐

Comments: Paint has been applied, sanded, and scraped onto and off of ships in the boat yard for 30 years. However, no sandblasting was allowed because of the close proximity of adjacent boats.

Reference: Oline, Ron S, 3/31/93, Ref. ID. 89

UST DIESEL - PAH — 1/1/82 — 2/10/90 — ☐ — 1 — 495 gal. — D

Comments: A 495 gallon UST was removed. No leakage noted in closure report.

Reference: Marsh, Dan, 2/19/93, Ref. ID. 243

JONES & GOODELL BOATBUILDING

Segment: 1 **Map Reference #** 5

Initiation of Activities: 1/1/68 **End of Activities** **Notes:** Boatyard operated from 1968 to 1994. Way Conn purchased in 1996.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
AST DIESEL - PAH			☐	1	?	D	
AST WASTE OIL - PAH			☐	1	250 gal.	W	
EXPOSED ZINC ANODES - ZN			☐				
LANDFILLING USED SANDBLAST GRIT - AG, AS, CD, CR, CU, HG, NI, PB, SB, TBT, ZN	1/1/68		☐				
PAINTING BOATS OR MARINE VESSELS - CR, CU, PB, TBT, ZN	1/1/68		☐				
PRESSURE WASHING OF PAINTED BOATS OR VESSELS - CR, CU, HG, PAH, PB, TBT, ZN			☐				
SANDING OR SANDBLASTING OF PAINTED BOATS OR VESSELS - AG, AS, CD, CR, CU, HG, NI, PAH, PB, SB, TBT, ZN	4/22/97	4/22/97	☐				

Comments: AST DIESEL - PAH: The report describes a former Diesel containing AST of unknown size and duration.

Reference: AST DIESEL - PAH: Dames & Moore, 8/22/97, Ref. ID. 287

Comments: AST WASTE OIL - PAH: Documentation of a 250 gallon AST said to contain Waste oils. No confirmed releases or starting operation dates.

Reference: AST WASTE OIL - PAH: Hyland, Danie W, 7/23/98, Ref. ID. 286

Comments: EXPOSED ZINC ANODES - ZN: Inspection report indicated that Zn anodes were exposed to rainfall with surface water going to the Hylebos.

Reference: EXPOSED ZINC ANODES - ZN: State of Washington Department of Ecology, 5/9/97, Ref. ID. 46

Comments: LANDFILLING USED SANDBLAST GRIT - AG, AS, CD, CR, CU, HG, NI, PB, SB, TBT, ZN: Spent sandblast grit has been observed as fill material behind a bulkhead at the marine railway and on the ground near the blasting shed. Erosion had caused some of the grit to leak onto the tide flats of the marine railway. A subsequent inspection in 1992 revealed that the previously observed grit had been removed.

Reference: LANDFILLING USED SANDBLAST GRIT - AG, AS, CD, CR, CU, HG, NI, PB, SB, TBT, ZN: Smith, Dave (State of Washington Department of Ecology), 9/30/99, Ref. ID. 332

Comments: PAINTING BOATS OR MARINE VESSELS - CR, CU, PB, TBT, ZN: Manufactured and repaired small watercraft. [Although the exact metal content of the paints used on this site were not specified, copper, chromium, lead, zinc, and TBT based paints are typically used for application to marine vessels.]

Reference: PAINTING BOATS OR MARINE VESSELS - CR, CU, PB, TBT, ZN: Allocation Team, NA, Ref. ID. 278

Comments: PRESSURE WASHING OF PAINTED BOATS OR VESSELS - CR, CU, HG, PAH, PB, TBT, ZN: Aluminum, fiberglass, steel, and wood boats are pressure washed on-site.

Reference: PRESSURE WASHING OF PAINTED BOATS OR VESSELS - CR, CU, HG, PAH, PB, TBT, ZN: Hyland, Danie W, 7/23/98, Ref. ID. 286

Comments: SANDING OR SANDBLASTING OF PAINTED BOATS OR VESSELS - AG, AS, CD, CR, CU, HG, NI, PAH, PB, SB, TBT, ZN: Site inspectors observed South Sound Marine Industries had sanded a vessel in the water.

Reference: SANDING OR SANDBLASTING OF PAINTED BOATS OR VESSELS - AG, AS, CD, CR, CU, HG, NI, PAH, PB, SB, TBT, ZN: State of Washington Department of Ecology, 5/9/97, Ref. ID. 46

SANDING OR SANDBLASTING OF PAINTED BOATS OR VESSELS - AG, AS, CD, CR, CU, HG, NI, PAH, PB, SB, TBT, ZN — 1/1/68 — ☐
Comments: Manufactured and repaired small watercraft.

Reference: U.S. Environmental Protection Agency, September 1996, Ref. ID. 43

JONES CHEMICAL

Segment: 2 **Map Reference #** 101

Initiation of Activities: 1/1/75 **End of Activities** **Notes:** Jones Chemicals operated at least in 1975 until present. Sometime before then, the site was used as gravel pit. Operations include repackaging of chlorine and ammonia, production of bleach from residual chlorine, and aqua ammonia from anhydrous ammonia.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
ASR GENERATION/STORAGE - AS, BBPH, BEPH, CD, CU, DMPH, DOPH, HG, NI, PAH, PB, PCB, ZN			☐				
Comments: Reference indicates the presence of "one pile of auto refuse on the property at the North end.".							
Reference: Herold, Mike, 9/16/91, Ref. ID. 185							
EXPOSED OILY FLOORS OR RAGS - PAH	11/3/92		☐				
Comments: Facility inspector reported a noticeable oil sheen surrounding a 55 gallon drum which was directly outside the elementary neutralization system and "...appeared to be leaking...".							
Reference: Rushing, Nicky and Lee Bagley, 11/3/92, Ref. ID. 184							
REFURBISHING CHEMICAL CYLINDERS - CD	1/1/74		☐				
Comments: The referenced report describes the chemical packaging process which includes the refurbishing of containment cylinders. This process includes bead blasting the valves routinely. The report states that approximately 500 pounds of soda lime glass and cadmium waste are generated every six months.							
Reference: Rushing, Nicky and Lee Bagley, 11/3/92, Ref. ID. 184							

JOSEPH SIMON & SONS

Segment: 4 **Map Reference #** 48

Initiation of Activities: 1/1/75 **End of Activities** **Notes:** The site was originally used for boatbuilding between 1946 and 1975. Simon & Sons purchased site in 1975 and operated on location until 1996.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
AST GASOLINE - PAH	1/1/50	12/31/69	☐	1	12,500 gal.	G	
Comments: Historical occupant operated a 12,500 gallon gasoline AST.							
Reference: Kennedy Jenks Consultants, 6/29/98, Ref. ID. 199							
AST WASTE OIL - PAH	1/1/50	12/31/69	☐	1	12,500 gal.	W	
Comments: Historical occupant operated a 12,500 gallon AST.							
Reference: Kennedy Jenks Consultants, 6/29/98, Ref. ID. 199							
LOG SORT YARD WITHOUT ASARCO SLAG USED AS BALLAST - DMP	1/1/84	9/1/96	☐				
Comments: Log sort yard activities occurred intermittently.							
Reference: Kennedy Jenks Consultants, 6/29/98, Ref. ID. 199							
PAINTING BOATS OR MARINE VESSELS - CR, CU, PB, TBT, ZN	1/1/46	12/31/75	☐				
Comments: [Although the exact metal content of the paints used on this site were not specified, copper, chromium, lead, zinc, and TBT based paints are typically used for application to marine vessels.]							
Reference: Allocation Team, NA, Ref. ID. 278							

RECYCLING OF PCB TRANSFORMERS - PCB ☐

Comments: Letter states that recycling and dismantling of locomotives is often associated with PCBs

Reference: Mercuri, Joyce, 4/8/93, Ref. ID. 264

SANDING OR SANDBLASTING OF PAINTED BOATS OR VESSELS - AG, AS, CD, CR, CU, HG, NI, PAH, PB, SB, TBT, ZN 1/1/46 12/31/75 ☐

Comments: During this period of time, the site was reportedly used for boat building. Samples from the site indicated sandblast grit contaminated with metals similar to those contained in ASARCO slag. [Sandblasting is a common boat yard activity.]

Reference: Kennedy Jenks Consultants, 6/29/98, Ref. ID. 199

KAISER ALUMINUM & CHEMICAL

Segment: 1 **Map Reference #** 14

Initiation of Activities: 1/1/42 **End of Activities** **Notes:** Facility was built in 1942 and is currently still operating.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
KAISER AIR POLLUTION CONTROL DUST/ROOF DUST - CU, PAH, PB, ZN	1/1/74		☐				

Comments: In 1974 the wet scrubber system was replaced by a dry scrubber system that produced dust and condensate from captured air emissions which must be periodically removed. Up to 20% of this material may consist of PAH's. Less than 500 tons are generated each year and sent to hazardous waste facilities in Arlington, Oregon.

Reference: Kaiser Aluminum and Chemical Corporation, February 1989, Ref. ID. 326

KAISER WET SCRUBBER SLUDGE - CU, PAH, PB, ZN 1/1/46 ☐

Comments: Operation of aluminum reduction and wire production plant. Process includes the use or presence of transformers (PCB's), spent potliners from cathode shells (Cyanide), air pollution control sludge (PAH's), dust from air pollution control ducts (PAH's), roof dust (PAH's), solvents (Chlorinated ethane's), oils and fuel (PAH's), Hazardous by-products, and slag.

Reference: U.S. Environmental Protection Agency, 3/19/93, Ref. ID. 5

KAISER WET SCRUBBER SLUDGE - CU, PAH, PB, ZN 1/1/50 ☐

Comments: Scrubber sludge, generated as a by-product of the wet scrubbers used to control hydrogen fluoride emissions, contained coal tar pitch derivatives (PAHs). PAH's concentration estimates in the sludge ranged as high as 5% by weight. Sludge was deposited in settling ponds on-site.

Reference: State of Washington Department of Ecology, 7/12/90, Ref. ID. 49

PCB TRANSFORMER USE - PCB 1/1/46 ☐

Comments: Describes the use of Transformers containing PCB's (primarily Aroclor 1260).

Reference: Schmeil, Paul (Kaiser), 5/11/89, Ref. ID. 11

LONE STAR NORTHWEST

Segment: 1 **Map Reference #** 11

Initiation of Activities: 1/1/88 **End of Activities** **Notes:** Prior owner apparently Kaiser. Owned and operated since 1988 by Lonestar NW.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
ASPHALT BATCH PLANT - PAH	7/1/93		☐				

Comments: In July 1993, Lone Star NW, Inc. leased land to Tucci & Sons for the development and operation of an asphalt batch plant.

Reference: Lone Star Northwest, date unknown, Ref. ID. 20

UST DIESEL - PAH	1/1/68	6/20/90	☐	1	3,000 gal.	D	

Comments: Removed a 3,000 gal. Diesel UST which was 22 years old. Contamination was found upon removal but not described in any detail.

Reference: Owens, Ed (LP), 6/20/90, Ref. ID. 21

UST DIESEL - PAH	1/1/68	6/20/90	☐	1	8,000 gal.	D	
Comments: Removed a 8,000 gal. Diesel UST which was 22 years old. Contamination was found upon removal but not described in any detail.							
Reference: Owens, Ed (LP), 6/20/90, Ref. ID. 21							
UST DIESEL - PAH			☐	1	5,000 gal.	D	
Comments: Report of 5,000 gal. Diesel tank that was tested and found to have a leak in the piping system with an estimated leak rate of 0.104 gph.							
Reference: Crawford, Tom, 01/20/92, Ref. ID. 22							

LOUISIANA PACIFIC

Segment: 1 **Map Reference #** 12

Initiation of Activities: 1/1/65 **End of Activities** **Notes:** From mid 60's until 1973, Cheney Lumber operated saw mill. From 1973 to present, Louisiana Pacific operated current saw mill/log sorting operation.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
ASARCO SLAG USED AS BALLAST ON LOG SORT YARD - AS, CD, CU, DMP, PB, SB, ZN	1/1/65		☐				
Comments: Log sort yard activities on site have been in existence since the mid 60's. LP began operations in 1973. Estimated 1,800 tons of ASARCO slag deposited at log sort yard in November 1977.							
Reference: Fledderjohann, Dirk, 9/17/93, Ref. ID. 26							
ASARCO SLAG USED AS BALLAST ON LOG SORT YARD - AS, CD, CU, DMP, PB, SB, ZN			☐				
Comments: Estimated average contribution of As approximately 0.166 lbs./day , 0.01 lbs./day Cu, 0.003 lbs./day Pb, 0.042 lbs./day Zn, to the Hylebos waterway. Please see report regarding assumptions and limitations of this data.							
Reference: CH2MHILL, October 1987, Ref. ID. 27							
EXPOSED OILY FLOORS OR RAGS - PAH			☐				
Comments: Oil sheen from parking lot drips observed contaminating the Hylebos during rain event.							
Reference: Enpsall, Glenda, 3/2/00, Ref. ID. 100							
HYDRAULIC OIL LEAKAGE/SPILLS - PAH	11/16/99	11/16/99	☐				
Comments: Small hydraulic oil spill from rolling stock. Hylebos was affected.							
Reference: Gray, Don, 11/18/99, Ref. ID. 101							
UST DIESEL - PAH	9/19/73	10/21/91	☐	1	2,000 gal.	D	
Comments: Describes Tank#2 as 2,000 gal. Diesel UST, no details provided on leakage if any.							
Reference: ATEC Associates, Inc, 5/29/92, Ref. ID. 30							
UST DIESEL - PAH	9/19/73	10/21/91	☐	1	8,000 gal.	D	
Comments: Describes Tank#3 as 8,000 gal. Diesel UST.							
Reference: ATEC Associates, Inc, 5/29/92, Ref. ID. 30							
UST GASOLINE - PAH	9/19/73	10/21/91	☐	1	1,000 gal.	G	
Comments: Describes Tank#1 as1,000 gal. Unleaded Gasoline UST, no details provided on leakage if any.							
Reference: ATEC Associates, Inc, 5/29/92, Ref. ID. 30							

MANKE LUMBER

Segment: 1 **Map Reference #** 6

Initiation of Activities: 1/1/64 **End of Activities** **Notes:** Manke began operations in 1964 purchasing original property from Port. Subsequent purchases further increased size of Manke holdings until present.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
AQUEOUS BASED WOOD PRESERVATIVE USE/STORAGE - PCP	1/1/64		☐				
Comments: Sawmill facility receives logs and cuts them into dimensional lumber. From 1970 to mid 1988 Manke stored and used sodium pentachlorophenol solution marketed under the name Permatox 100, 101, and 180. This compound was mixed with water and used for sapstain control on the lumber.							
Reference: Manke, James D, April 1993, Ref. ID. 52							
HYDRAULIC OIL LEAKAGE/SPILLS - PAH	1/1/87	1/1/87	☐				
Comments: In 1987, 200 gallons of hydraulic oil spilled onto an asphalt-paved area and was mopped up with absorbent material before it could leak into the Hylebos waterway.							
Reference: Manke, James D, April 1993, Ref. ID. 52							
MALFUNCTIONING OIL/WATER SEPARATOR - PAH	1/1/87	1/1/87	☐				
Comments: In 1987, an oil/water separator malfunctioned and a small amount of oil escaped into the Hylebos waterway.							
Reference: Manke, James D, April 1993, Ref. ID. 52							
SANDING OR SANDBLASTING OF PAINTED BOATS OR VESSELS - AG, AS, CD, CR, CU, HG, NI, PAH, PB, SB, TBT, ZN		12/31/87	☐				
Comments: The affidavit states that a 1.5 acre parcel of land was purchased from Norman and Phyllis Nordlund in 1976, as well as a seven acre parcel of land was purchased from the Petrich family trust in 1987. It is Manke's belief that during Nordlund and Petrich's ownership, various boat building or repair operations were conducted on the two properties. It is also stated that when Manke purchased the seven acres from the Petrich Family Trust in 1987, the seller disclosed that at one time a sandblasting operation had been conducted on the site, which used slag from the ASARCO plant in Tacoma.							
Reference: Manke, James D, April 1993, Ref. ID. 52							
UST DIESEL - PAH	1/1/90	1/1/90	☐	1	10,000 gal.	D	
Comments: Post UST removal site evaluation yielded that a 10,000 gallon diesel tank had been removed, and that petroleum contaminated soil (approximately >100 cubic yards) had been removed from the site.							
Reference: Emcon Northwest, Inc, 3/11/92, Ref. ID. 54							

MODUTECH MARINE

Segment: 3 **Map Reference #** 24

Initiation of Activities: **End of Activities** **Notes:** Marine Technical Services leased property prior to 1983 starting date unknown. Modutech operated from 1983 until present.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
ASR USED AS FILL - AS, BBPH, BEPH, CD, CU, DMPH, DOPH, HG, NI, PAH, PB, PCB, ZN	7/19/94		☐				
Comments: Site inspector observed some ASR on the north part of the property. It was located behind large rip-rap made of concrete chunks. Rubber hoses, gaskets, etc. were observed in the adjacent intertidal area and are believed to be the result of bank erosion as opposed to intertidal dumping of ASR.							
Reference: Mercuri, Joyce (State of Washington Department of Ecology), 11/29/94, Ref. ID. 273							
AST WASTE OIL - PAH	4/5/90		☐	1	500 gal.	W	
Comments: Above ground waste oil tank with approximate capacity of 500 gallons. Some waste oil spillage was observed in the area. No information provided on installation or removal dates.							
Reference: Gooding, Lynn, et al, 4/5/90, Ref. ID. 274							
LANDFILLING USED SANDBLAST GRIT - AG, AS, CD, CR, CU, HG, NI, PB, SB, TBT, ZN		5/25/94	☐				
Comments: Waste sandblast grit was spread on roads and surfaces in various areas of the site as a method of disposal.							
Reference: Mercuri, Joyce, 7/12/94, Ref. ID. 95							

PAINTING BOATS OR MARINE VESSELS - CR, CU, PB, TBT, ZN ☐

Comments: Inspection recommendations indicate that boat painting was occurring in the marine rail-way area.

Reference: Mercuri, Joyce et al, 6/17/92, Ref. ID. 279

PRESSURE WASHING OF PAINTED BOATS OR VESSELS - CR, CU, HG, PAH, PB, TBT, ZN ☐

Comments: Boat building and repair mostly on fiberglass hulled boats. Including washing of hulls and other exterior surfaces with runoff going directly to the ground.

Reference: Swindahl, Carl, 4/7/93, Ref. ID. 94

SANDING OR SANDBLASTING OF PAINTED BOATS OR VESSELS - AG, AS, CD, CR, CU, HG, NI, PAH, PB, SB, TBT, ZN ☐

Comments: The reference states that waste sandblast grit including residue from anti-fouling paints were probably contributing to the high metals content of samples taken from the property. Apparently, waste sandblasting grit is spread around the yard as a means of disposal.

Reference: Gooding, Lynn, 4/16/91, Ref. ID. 96

SANDING OR SANDBLASTING OF PAINTED BOATS OR VESSELS - AG, AS, CD, CR, CU, HG, NI, PAH, PB, SB, TBT, ZN — End Date: 5/25/94 ☐

Comments: Boat yard operations on this site included sandblasting painted boats and vessels.

Reference: Mercuri, Joyce, 7/12/94, Ref. ID. 95

MURRAY PACIFIC

Segment: 3 **Map Reference #** 29

Initiation of Activities: **End of Activities** **Notes:** Prior to 1973, Port. From 1973-83, Murray Pacific leased property from Port. Murray now owns property and has remediated property sometime in the mid to late 90s.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
ASARCO SLAG USED AS BALLAST ON LOG SORT YARD - AS, CD, CU, DMP, PB, SB, ZN	1/1/75		☐				
UST DIESEL - PAH	1/1/76	12/31/92	☐	1	10,000 gal.	D	
UST DIESEL - PAH		12/31/90	☐	1	?	?	
UST DIESEL - PAH		12/31/90	☐	1	?	?	
UST DIESEL - PAH		12/31/90	☐	1	?	?	

ASARCO SLAG USED AS BALLAST ON LOG SORT YARD - AS, CD, CU, DMP, PB, SB, ZN

Comments: Between 1975 and 1981, 29,225 tons of ASARCO slag was deposited on the Murray Pacific site for use as ballast in log sorting activities.

Reference: Shenk, Jr., Clair A, 3/23/93, Ref. ID. 87

UST DIESEL - PAH

Comments: Removed a leaking 10,000 gallon diesel UST along with some contaminated soil.

Reference: Shenk, Chuck, 7/19/93, Ref. ID. 85

UST DIESEL - PAH

Comments: UST removed and diesel contaminated soil detected.

Reference: Shenk, Chuck, 7/19/93, Ref. ID. 85

UST DIESEL - PAH

Comments: UST removed and diesel contaminated soil detected.

Reference: Shenk, Chuck, 7/19/93, Ref. ID. 85

UST DIESEL - PAH

Comments: UST removed and diesel contaminated soil detected.

Reference: Shenk, Chuck, 7/19/93, Ref. ID. 85

NORDLUND PROPERTIES

Segment: 1 **Map Reference #** 2

Initiation of Activities: 1/1/67 **End of Activities** **Notes:** Hart Construction operated from 1967-79. Nordlund Properties purchased in 1979. Several subleases to other businesses.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
UST DIESEL - PAH			☐	3	10,600 gal.	D	

Comments: Three UST's on site were removed and inspected. Two 3,800 gallon tanks, and one 3,000 gallon tank all containing diesel, one of which was leaking.

Reference: Neuston, 2/21/98, Ref. ID. 39

OCCIDENTAL

Segment: 5 **Map Reference #** 57

Initiation of Activities: 1/1/1928 **End of Activities** **Notes:** Operations began in 1928 and is currently operating. Between April and May of 1981, approximately 2000 cubic yards of soil contaminated with chlorinated organic compounds, was removed. The PRI property is included with this site.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
AQUEOUS BASED WOOD PRESERVATIVE USE/STORAGE - PCP			☐				

Comments: Historical used of wood preservatives.

Reference: U.S. Environmental Protection Agency, 2/26/88, Ref. ID. 135

AST DIESEL - PAH			☐	14	> 35,000 gal.	D	

Comments: Fletcher operated at least 14 AST ranging from 500-35,000 barrels of diesel.

Reference: Hart Crowser, 11/24/93, Ref. ID. 151

AST GASOLINE - PAH			☐	9	?	G	

Comments: PRI Northwest operated at least 9 AST containing gasoline and leaded gasoline's.

Reference: Ecology and Environment, Inc, May 1990, Ref. ID. 150

CHLORINE MANUFACTURING BY OCCIDENTAL - HCB, HCBD, MDCB, PB, PDCB, TCB			☐				

Comments: Mercury was detected in stormwater drain from plant.

Reference: Tetra Tech, Inc, 1985, Ref. ID. 7

CHLORINE MANUFACTURING BY OCCIDENTAL - HCB, HCBD, MDCB, PB, PDCB, TCB			☐				

Comments: Chlorine stripper effluent contains HCB and HCBD. Material was directly discharged to Hylebos for some time.

Reference: Tetra Tech, Inc, 1985, Ref. ID. 7

CHLORINE MANUFACTURING BY OCCIDENTAL - HCB, HCBD, MDCB, PB, PDCB, TCB			☐				

Comments: Brine sludge was discharged to Hylebos.

Reference: Region 10 S&A Inspection Team, 7/3/79, Ref. ID. 174

CHLORINE MANUFACTURING BY OCCIDENTAL - HCB, HCBD, MDCB, PB, PDCB, TCB			☐				

Comments: Pipeline carrying brine broke and released more than 6000 gallons of brine to stormwater sewer. 4.5 to 7.3 pounds of lead would have been released to the Hylebos.

Reference: Abercrombie, Will, 2/22/84, Ref. ID. 144

LANDFILLING OF SLAG MATERIAL AT OCCIDENTAL - AG, AS, CD, CR, CU, HG, NI, PB, SB, ZN ☐

Comments: During a characterization study of the embankment along the Hylebos waterway in 1996, the presence of an uncharacterized slag material was reported in boreholes ranging from 2.0 to 12.0 feet below ground surface.

Reference: Occidental Chemical Corp, 9/13/96, Ref. ID. 276

LEAD/GRAPHITE SPENT ANODE STORAGE/DISPOSAL - PB 1/1/1929 6/30/71 ☐

Comments: Waste lead/graphite anodes were stored and disposed of on-site and used in landfill for reclamation projects along the Hylebos Waterway. Of the estimated 12,000 cubic yards of total fill, it is estimated that 4,800 cubic yards was plant process waste (including graphite pieces).

Reference: Scholes, D.A, 5/14/85, Ref. ID. 137

LEAD/GRAPHITE SPENT ANODE STORAGE/DISPOSAL - PB ☐

Comments: Occidental used process waste and lead/graphite anodes as fill in this site.

Reference: Mohsen Kourehdar, 9/23/94, Ref. ID. 152

MERCURY ARC RECTIFIER OPERATION - HG ☐

Comments: Mercury arc rectifiers were used to generate DC current from AC supplied power.

Reference: McGregor, Alastair J.H, 1/11/91, Ref. ID. 138

OCCIDENTAL RECLAMATION FILL - HCB, HCBD, MDCB, ODCB, PB, PDCB, TCB ☐

Comments: Solids and slurries from plant effluent were used as fill. Material contains all organics and metals that plant effluent had.

Reference: Scholes, D.A, 5/14/85, Ref. ID. 137

OCCIDENTAL RECLAMATION FILL - HCB, HCBD, MDCB, ODCB, PB, PDCB, TCB ☐

Comments: Occidental used process waste and lead/graphite anodes as fill in this site.

Reference: Mohsen Kourehdar, 9/23/94, Ref. ID. 152

PCB CONTAMINATED OIL SPILL - PCB ☐

Comments: Report that PCB contaminated oil may have been used.

Reference: State of Washington Department of Ecology, September 1995, Ref. ID. 153

PCB TRANSFORMER USE - PCB 1/1/50 ☐

Comments: Site had at least five locations where transformers contaminated with PCBs were either operated in the past, or presently in use (as of 01/11/1991). Of the five referenced locations, one is described as a "transformer yard" and appears to represent a significant portion of the property. The other references describe either multiple or individual transformers. In addition, it is noted that the chemicals associated with these transformers includes PCB's.

Reference: McGregor, Alastair J.H, 1/11/91, Ref. ID. 138

PETROLEUM BLENDING (TETRA-ETHYL LEAD) - PAH, PB ☐

Comments: Tetraethyllead was stored and then blended into leaded gasoline's on the PRI property.

Reference: Hart Crowser, 6/14/94, Ref. ID. 149

PETROLEUM LEAKS/SPILLS - PAH ☐

Comments: Around 1 pint of lube oil released during repairs to plant's effluent piping.

Reference: Cook, Kyle, 6/1/84, Ref. ID. 145

PETROLEUM LEAKS/SPILLS - PAH ☐
Comments: Oil from caustic evaporation system was released. Volume unknown.
Reference: Iams, Karl B, 9/30/94, Ref. ID. 146

PETROLEUM LEAKS/SPILLS - PAH ☐
Comments: 300 gallons of diesel "seeped into ground" on the PRI property.
Reference: State of Washington Department of Ecology, September 1995, Ref. ID. 153

PETROLEUM LEAKS/SPILLS - PAH ☐
Comments: 10-15 Gallons of diesel #6 was released into the ground from a leak in a pipe.
Reference: Monahan, Frank, 9/17/82, Ref. ID. 143

PETROLEUM LEAKS/SPILLS - PAH ☐
Comments: Gasoline and Diesel valves were leaking on the PRI property.
Reference: State of Washington Department of Ecology, September 1995, Ref. ID. 153

PETROLEUM LEAKS/SPILLS - PAH ☐
Comments: 69 gallons of gasoline spilled on the PRI property.
Reference: State of Washington Department of Ecology, September 1995, Ref. ID. 153

PETROLEUM LEAKS/SPILLS - PAH ☐
Comments: One quart of hydraulic fluid was lost when a line blew.
Reference: Monahan, Frank, 9/17/82, Ref. ID. 143

PETROLEUM LEAKS/SPILLS - PAH ☐
Comments: 2 gallons of oil released when cooling coils broke.
Reference: Abercrombie, Will, 2/22/84, Ref. ID. 144

PETROLEUM REFINING - PAH 1/1/70 12/31/89 ☐
Comments: A small topping plant was operated during the 1970's and 1980's by United Independent Oil to produce light distallate and to refine light crude on the PRI property.
Reference: State of Washington Department of Ecology, September 1995, Ref. ID. 153

UST DIESEL - PAH ☐ 1 ? D
Comments: UST at PRI for heating oil for office use.
Reference: Ecology and Environment, Inc, May 1990, Ref. ID. 150

UST DIESEL - PAH ☐ ? D
Comments: Diesel containment tray had water, diesel and soiled spill pads in it. Surrounding ground was contaminated with diesel.
Reference: Cloud, Greg and Mark Pacifico, 8/31/93, Ref. ID. 142

UST DIESEL - PAH ☐ 60,000 gal. D
Comments: Plant has up to 50-60,000 gallons of Diesel #6 stored on site. Several small UST's including 1000 gallon tank and a 500 gallon tank.
Reference: Robinson, Ron, 11/6/87, Ref. ID. 141

UST GASOLINE - PAH	☐	1	500 gal.	G		

Comments: 500 gallon tank used to store lead waste from gasoline leading operations.

Reference: Ecology and Environment, Inc, May 1990, Ref. ID. 150

OLE & CHARLIE'S MARINA

Segment: 5 **Map Reference #** 55

Initiation of Activities: **End of Activities** **Notes:** Marina has operated since early 1950's

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
PAINTING BOATS OR MARINE VESSELS - CR, CU, PB, TBT, ZN	1/1/50		☐				

Comments: Affidavit did not specify what kinds of paints; [Although the exact metal content of the paints used on this site were not specified, copper, chromium, lead, zinc, and TBT based paints are typically used for application to marine vessels.]

Reference: Olson, Donald S, 9/20/93, Ref. ID. 156

PRESSURE WASHING OF PAINTED BOATS OR VESSELS - CR, CU, HG, PAH, PB, TBT, ZN	1/1/50		☐			

Comments: The marine haulout lacks equipment to prevent contamination from boat washing and repair wastes from entering the waterway.

Reference: Herold, Hyun Um, Roy Young, 12/4/90, Ref. ID. 157

SANDING OR SANDBLASTING OF PAINTED BOATS OR VESSELS - AG, AS, CD, CR, CU, HG, NI, PAH, PB, SB, TBT, ZN	1/1/50		☐			

Comments: Spilled sandblast grit was observed outside a building on the north end of the site, indicating that sandblasting may have been conducted at one time.

Reference: Herold, Hyun Um, Roy Young, 12/4/90, Ref. ID. 157

UST DIESEL - PAH		7/31/90	☐	1	10,000 gal.	D

Comments: No contamination noted upon removal of 10,000 gallon tank containing diesel.

Reference: Olson, Donald S, 9/20/93, Ref. ID. 156

UST GASOLINE - PAH		7/31/90	☐	1	10,000 gal.	G

Comments: No contamination noted upon removal of 10,000 gallon tank containing leaded gasoline.

Reference: Olson, Donald S, 9/20/93, Ref. ID. 156

UST GASOLINE - PAH		7/31/90	☐	1	10,000 gal.	G

Comments: No contamination noted upon removal of 10,000 gallon tank containing unleaded gasoline.

Reference: Olson, Donald S, 9/20/93, Ref. ID. 156

PETROLEUM RECLAIMING SERVICES

Segment: 2 **Map Reference #** 21

Initiation of Activities: 1/1/42 **End of Activities** **Notes:** Ohio Ferro alloy owned the site prior to 1942. From 1942-1976, City of Tacoma substation. After 1977, PRS operated petroleum reclaiming services.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
PETROLEUM LEAKS/SPILLS - PAH	8/1/83		☐				

Comments: Documented 200 gallon oil spill on site which resulted in the closure of the a pump station.

Reference: Weston, Donald (JRB Associates), 11/15/84, Ref. ID. 250

STORAGE AND/OR RECYCLING OF WASTE OILS CONTAINING PCBs - PAH, PCB 1/1/77 ☐
Comments: Recycling and treating of waste oils potentially contaminated with PCBs.
Reference: Michelena, Karen, et al, 5/17/93, Ref. ID. 312

PHILADELPHIA QUARTZ

Segment: 4 **Map Reference #** 66

Initiation of Activities: 1/1/41 **End of Activities** **Notes:** Vacant prior to purchase in 1941

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
AST DIESEL - PAH			☐	1	300 gal.	D	
Comments: 300 gallon diesel AST on site							
Reference: Posner, Ernest G, 11/20/92, Ref. ID. 212							
AST GASOLINE - PAH			☐	1	300 gal.	G	
Comments: 300 gallon gasoline AST on site.							
Reference: Posner, Ernest G, 11/20/92, Ref. ID. 212							
AST WASTE OIL - PAH			☐	2	?	W	
Comments: Two AST's containing oil on site.							
Reference: Posner, Ernest G, 11/20/92, Ref. ID. 212							

PORT OF TACOMA (3002 TAYLOR WAY)

Segment: 1 **Map Reference #** 13

Initiation of Activities: 1/1/41 **End of Activities** 12/31/74 **Notes:** Also known as the Blair Backup Property. Prior to 1941, owned by Port and vacant; 1941-1974 Ohio FerroAlloy operated on site.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
ASARCO SLAG STORAGE OR LANDFILLING - AS, CD, CU, PB, SB, ZN			☐				
Comments: Most slag found on the was identified as OFA slag, however, there was some ASARCO slag identified throughout the property. No amounts or dates of use available.							
Reference: Hart Crowser, 1/29/92, Ref. ID. 307							
DISPOSAL/STORAGE OF CHARCOAL - PAH	1/31/74		☐				
Comments: Charcoal briquettes used to fuel the former OFA smelter were buried and mixed with site soils after the demolition of the OFA smelter. Approximately 2 acres are filled with briquette laden material. Analytical results show concentrations of total CPAHS in soil samples range from 65 mg/kg to 2,980 mg/kg and in charcoal briquettes range from 1,835 mg/kg to 9,730 mg/kg. About 4,100 cubic yards of buried charcoal briquettes and about 8,900 cubic yards of CPAH-containing soils are found up to six feet deep.							
Reference: U.S. Environmental Protection Agency, 3/9/93, Ref. ID. 259							
LANDFILLING OHIO FERRO ALLOY SMELTER SLAG - CR			☐				
Comments: Smelter slag from the Ohio-Ferro Alloy plant was deposited on the site. Chrome dust is a suspected contaminant.							
Reference: Hart Crowser, 1/21/94, Ref. ID. 258							
LANDFILLING USED SANDBLAST GRIT - AG, AS, CD, CR, CU, HG, NI, PB, SB, TBT, ZN			☐				
Comments: Used sandblast grit was found in various locations on the site.							
Reference: Hart Crowser, 1/21/94, Ref. ID. 258							

SOUND REFINING

Segment: 4 **Map Reference #** 41

Initiation of Activities: 1/1/66 **End of Activities** **Notes:** Refining plant constructed in 1966. Operations commenced in September, 1967. Currently operating.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
AST WASTE OIL - PAH	11/1/67		☑	33	?		
Comments: Notes from a visit at Sound Refining indicate the facility had 33 above ground storage tanks (with one more under construction) used for storage of crude oil as well as processed petroleum products including asphalt, naptha, fuel-oil, anti-strip, and diesel during the time of visit. The facility receives it's crude oil shipments by barge from the Hylebos Waterway along the South edge of the property.							
Reference: Osweiler, Mike C, 9/23/91, Ref. ID. 284							
PETROLEUM LEAKS/SPILLS - PAH			☐				
Comments: 150 gallons oil spilled within the tank berm.							
Reference: Oberlander, Jim (State of Washington Department of Ecology), 4/24/93, Ref. ID. 164							
PETROLEUM LEAKS/SPILLS - PAH			☐				
Comments: 40 gallons of "tar" oil was spilled onto soil.							
Reference: Cleveland, Verna (State of Washington Department of Ecology), 11/22/91, Ref. ID. 162							
PETROLEUM LEAKS/SPILLS - PAH			☐				
Comments: 75 gallons of heat transfer oil spilled.							
Reference: Osweiler, Mike (State of Washington Department of Ecology), 11/10/94, Ref. ID. 165							
PETROLEUM LEAKS/SPILLS - PAH			☐				
Comments: 50 gallons of heavy bunker C oil spilled into a gravel area. It was put into drums and shipped out as hazardous waste.							
Reference: Mcleod, Nancy (State of Washington Department of Ecology), June 1992, Ref. ID. 163							
PETROLEUM LEAKS/SPILLS - PAH			☐				
Comments: One gallon of Tia Juana Crude oil was spilled into the Hylebos when the nipple on a pump hose broke.							
Reference: Armstrong, Kathy (State of Washington Department of Ecology), 4/9/97, Ref. ID. 161							
PETROLEUM LEAKS/SPILLS - PAH			☐				
Comments: Fifteen gallons or more of Bunker C oil was spilled on the dock and was lost to the Hylebos.							
Reference: Cloud, Greg (State of Washington Department of Ecology), 8/6/85, Ref. ID. 159							
PETROLEUM LEAKS/SPILLS - PAH			☐				
Comments: Two to three gallons of diesel was release directly to the Hylebos when an engine fuel line valve on a barge ruptured.							
Reference: Osweiler, Mike (State of Washington Department of Ecology), 11/27/89, Ref. ID. 160							
PETROLEUM REFINING - PAH	11/1/67		☑				
Comments: The reference states that "The plant refines heavy crude oil into a number of products including asphalt, kerosene, gas, naptha, and residual fuel oil."							
Reference: Weston, Donald (SAIC), 7/17/85, Ref. ID. 158							
WASTE WATER DISCHARGE FROM SOUND REFINING - AG, AS, CD, CR, CU, HG, NI, PAH, PB, PCP, ZN	1/1/66		☑				
Comments: Discharge of oil refining waste effluent to Hylebos exceeding NPDES permit levels for oil and grease as well as metals.							
Reference: Weston, Donald (SAIC), 7/17/85, Ref. ID. 158							

SPECIALTY MACHINE SHOP

Segment: 5 **Map Reference #** 52

Initiation of Activities: **End of Activities** **Notes:**

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
PETROLEUM LEAKS/SPILLS - PAH			☐				

Comments: Oil staining observed in soil with wastewater going to the Hylebos.

Reference: State of Washington Department of Ecology, 10/17/89, Ref. ID. 268

STONE INVESTMENTS

Segment: 3 **Map Reference #** 25

Initiation of Activities: **End of Activities** **Notes:** Could not determine dates of any activities or ownership.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
PETROLEUM LEAKS/SPILLS - PAH			☐				

Comments: Oil stains were observed in gravel areas of the site, which could be attributable to the storage of industrial equipment.

Reference: Herold, Mike (State of Washington Department of Ecology), 4/30/91, Ref. ID. 247

PETROLEUM LEAKS/SPILLS - PAH			☐				

Comments: A pair of used diesel engines are stored on the Southwest corner of the site. Their condition is not described.

Reference: Herold, Mike (State of Washington Department of Ecology), 4/30/91, Ref. ID. 247

STREICH BROTHERS

Segment: 1 **Map Reference #** 3

Initiation of Activities: 1/1/66 **End of Activities** **Notes:** Port owned property prior to 1966; no known activities. After 1966 Streich Brothers operated and purchased two more small plots of adjacent land.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
PCB TRANSFORMER USE - PCB			☐				

Comments: An internal transformer is located in the closet on the second floor and has been certified as not containing PCB's. Six other electrical power transformers were observed serving the property. These transformers have not been tested. Therefore, under federal regulations, oil contained in these transformers is presumed to be PCB contaminated (50 to 500 ppm PCBs)

Reference: M&M Environmental, Unknown Date, Ref. ID. 41

PETROLEUM LEAKS/SPILLS - PAH			☐				

Comments: Machine shop operations with related materials including waste oils, metal shavings, used oil filters. Surface water flows into marine view drive drainage ditch and eventually the Hylebos waterway.

Reference: Streich Brothers, 10/1/92, Ref. ID. 40

UST GASOLINE - PAH	6/26/91		☐	1	1,000 gal.	G	

Comments: A 1,000 gal. tank storing leaded fuel was removed by ATEC for Streich Brothers. Estimated age of tank = 23 years

Reference: ATEC Associates, Inc, 8/14/91, Ref. ID. 42

SUPERLON PLASTICS

Segment: 3 **Map Reference #** 94

Initiation of Activities: **End of Activities** **Notes:** Believed to drain to the Blair waterway. Previous notable tenants include Latimer-Goodwin Chemical Co. and Dupont.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product

PRODUCTION AND STORAGE OF POLYETHYLENE PIPING - BBPH, BEPH, DMPH 1/1/72 ☐

Comments: Has been producing polyethylene piping since the site was purchased by Superlon in 1972.

Reference: Ecology and Environment, Inc, 2/28/91, Ref. ID. 98

TACOMA BOATBUILDING

Segment: 1 **Map Reference #** 7

Initiation of Activities: **End of Activities** **Notes:** Considered to be a significant source of heavy metals contamination due to the large quantities of spent sandblast grit that is being transported into the hylebos waterway.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product

MALFUNCTIONING OIL/WATER SEPARATOR - PAH ☐

Comments: Several areas where waste oil had been spilled on the ground, particularly next to the air compressor and the "old" air compressor room. The "old" air compressor discharges oily water via a pipe through the wall into a metal, shoe-box size container resembling an oil-water separator. The "separator" is uncovered on one side and half full of oil. Area around separator heavily stained with oil. The new air compressor is outside and had a thick oily sludge underneath. Water from this area flowed directly to a storm drain. Oily seeps were discovered on the beach as well and were sampled (no results provided).

Reference: State of Washington Department of Ecology, 7/24/89, Ref. ID. 62

PAINTING BOATS OR MARINE VESSELS - CR, CU, PB, TBT, ZN 1/1/70 ☐

Comments: [Although the exact metal content of the paints used on this site were not specified, copper, chromium, lead, zinc, and TBT based paints are typically used for application to marine vessels.]

Reference: Allocation Team, NA, Ref. ID. 278

PCB'S FROM SHIP MAINTENANCE - PCB 1/1/70 ☐

Comments: [Tacoma Boatbuilding operated during a period in which ships with PCB's onboard would have been serviced.]

Reference: U.S. Environmental Protection Agency, November 1997, Ref. ID. 122

PETROLEUM LEAKS FROM SHIP MAINTENANCE & REPAIRS - PAH 2/15/84 2/15/84 ☐

Comments: Waste oil storage tanks on deck at Tacoma Boatbuilding were being drained of accumulated water. The water draw off was discharged directly to the Hylebos Waterway and was generating a large visible oil sheen.

Reference: Anderson, Doug, 2/15/84, Ref. ID. 285

PETROLEUM TRANSPORTING AND STORAGE IN LEAKING CONTAINERS/DRUMS - PAH ☐

Comments: Machine shop uses various lubricating and cutting oils. Many containers of hazardous waste and other material are on site (Ninety five 55 gallon(waste oil, paint waste, mek, and unknown) containers, Five 30 gallon (unknown) containers, two 10 gallon (unknown) containers, twenty 5 gallon (5 unknown, 15 waste marine paint non-tbt) containers, four 1 gallon (waste acid HCL) containers. Some of these containers were observed leaking and many were confirmed as having been stored well beyond the 90 day limit (last manifest from 1988).

Reference: State of Washington Department of Ecology, 4/25/89, Ref. ID. 60

PRESSURE WASHING OF PAINTED BOATS OR VESSELS - CR, CU, HG, PAH, PB, TBT, ZN 1/1/70 ☐

Comments: Since the 1970's, Tacoma Boatbuilding has performed various operations related to shpbuilding and repair including, upland and in-water sandblasting of ship hulls and other ship parts, high velocity water spray cleaning (hydroblasting) of ship hulls, and painting. Various contaminants have been identified with these process and the resulting waste sandblast grit and paint chips.

Reference: State of Washington Department of Ecology, 6/8/98, Ref. ID. 331

SANDING OR SANDBLASTING OF PAINTED BOATS OR VESSELS - AG, AS, CD, CR, CU, HG, NI, PAH, PB, SB, TBT, ZN ☐

Comments: Sandblasting is performed on marine vessels using a copper based slag media.

Reference: Bantowsky, Margit, et. al, 5/26/95, Ref. ID. 271

STORAGE OF SPENT SANDBLASTING GRIT (COPPER SLAG) - AG, AS, CD, CR, CU, HG, NI, PB, SB, TBT, ZN ☐

Comments: WDOE inspection identified spent sandblast grit in the upland area, and launching and intertidal areas. Data collected showed that contaminants including copper, lead and zinc, were being transported from the property to the Hylebos waterway.

Reference: U.S. Environmental Protection Agency, 4/24/98, Ref. ID. 58

UST DIESEL - PAH ☐ 1 1,000 gal. D

Comments: 500-1000 gallon UST containing diesel near front gate. Tank was believed to be repaired indicating that leakage may have occurred.

Reference: Jowise, Peter, 9/29/86, Ref. ID. 106

UST GASOLINE - PAH 3/1/95 ☐ 1 1,000 gal. G

Comments: A 1,000 gallon unleaded gasoline UST was removed.

Reference: State of Washington Department of Ecology, 11/17/95, Ref. ID. 61

TAYLOR WAY PROPERTIES

Segment: 4 **Map Reference #** 47

Initiation of Activities: **End of Activities** **Notes:** Convoluted history beginning in 1889 with Puyallup Indians.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
AQUEOUS BASED WOOD PRESERVATIVE USE/STORAGE - PCP	1/1/58	12/31/70	☐				

Comments: Tank was removed in 1985 with PCP detected underneath. PCP more likely than not used by wood manufacturers such as Brazier and Allied Building Components.

Reference: Stefan, Fran (State of Washington Department of Ecology), 12/13/85, Ref. ID. 195

LOG SORT YARD WITHOUT ASARCO SLAG USED AS BALLAST - DMP 1/1/82 12/31/85 ☐

Comments: Operated a log sorting yard. No ASARCO slag noted in report used as ballast but the woodwaste on site may exacerbate the ASARCO slag derived sandblasting grit found on site.

Reference: Hart Crowser, 6/4/85, Ref. ID. 194

PULP MILL OPERATIONS - PAH 1/1/1921 12/31/42 ☐

Comments: Schafer pulp mill operations discharged process black liquor wastewater from an outfall into the Hylebos waterway.

Reference: Dames & Moore, January 1982, Ref. ID. 328

SANDBLASTING USING COPPER SLAG FOR OTHER THAN BOATS OR VESSELS - AG, AS, CD, CR, CU, NI, PB, SB, ZN 1/1/66 12/31/70 ☐

Comments: Sierra Sandblasting operated a sandblasting business on site, which used both silica and a copper based slag to blast new steel equipment. Approximately 3 tons of this copper based slag were used per month.

Reference: Torlai, Catherine M, 10/20/92, Ref. ID. 192

STORAGE AND/OR RECYCLING OF WASTE OILS CONTAINING PCBs - PAH, PCB ☐

Comments: Oil found in tanks contained Aroclor 1016.

Reference: Clark, Mike, 8/6/86, Ref. ID. 191

TOPE TRACTOR

Segment: 4 **Map Reference #** 38

Initiation of Activities: **End of Activities** **Notes:** Purchased in 1958-74 for Allen Construction Co., 1974-75-Foss Towboat; 1978-82- Construction Company; 1982- Banyan Rail and two boat brokers

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product

ASARCO SLAG USED AS BALLAST ON OTHER THAN LOG SORT YARD - AS, CD, CU, PB, SB, ZN ☐
Comments: ASARCO slag was found covering exposed soil areas of the property.
Reference: Airo Environmental Services, Inc, 11/13/92, Ref. ID. 209

PETROLEUM LEAKS/SPILLS - PAH ☐
Comments: Barbara Allen cited oil spills occurring in CERCLA response.
Reference: Byrd, Glenn M, 5/20/93, Ref. ID. 211

U.S. NAVAL RESERVE

Segment: 5 **Map Reference #** 59

Initiation of Activities: **End of Activities** **Notes:** Ownership and opeations conflict with AK/WA site but this site appears to have been opeating as the Reserve since 1948. Before that, it was part of Todd shipyards operating since 1917.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
AST DIESEL - PAH			☐	1	10,000 gal.	?D	
Comments: Former 10,000 gallon tank; contents unknown but presumably diesel.							
Reference: AGI Technologies, 10/27/95, Ref. ID. 155							
AST DIESEL - PAH			☐	1	20,000 BBL	?D	
Comments: Former 20,000 BBL tank #6; contents unknown but presumably diesel.							
Reference: AGI Technologies, 10/27/95, Ref. ID. 155							
AST DIESEL - PAH			☐	1	20,750 BBL	?D	
Comments: Former 20,750 BBL tank #7; contents unknown but presumably diesel.							
Reference: AGI Technologies, 10/27/95, Ref. ID. 155							
AST DIESEL - PAH			☐	1	23,136 BBL	?D	
Comments: Former 23,136 BBL tank #11; contents unknown but presumably diesel.							
Reference: AGI Technologies, 10/27/95, Ref. ID. 155							
AST DIESEL - PAH			☐	1	15,000 BBL	?D	
Comments: Former 15,000 BBL tank #4; contents unknown but presumably diesel.							
Reference: AGI Technologies, 10/27/95, Ref. ID. 155							
AST DIESEL - PAH			☐	1	?	?D	
Comments: Former 10X30' tank; contents unknown but presumably diesel.							
Reference: AGI Technologies, 10/27/95, Ref. ID. 155							
AST WASTE OIL - PAH			☐	1	2,000 gal.	W	
Comments: 2000 gallon tank to hold oily bilge water. Oil/water separator used to remove oil to 700 gallon AST until final removal by recycler.							
Reference: URS Consultants, Inc, 1/22/96, Ref. ID. 154							
PCB TRANSFORMER USE - PCB			☐				
Comments: 939 kg transformer removed and disposed of. No spills or releases were documented.							
Reference: URS Consultants, Inc, 1/22/96, Ref. ID. 154							

PETROLEUM LEAKS FROM SHIP MAINTENANCE & REPAIRS - PAH Comments: 7 gallons of Navy special fuel oil spilled due to valve misalignment. Reference: URS Consultants, Inc, 1/22/96, Ref. ID. 154	☐				
PETROLEUM LEAKS FROM SHIP MAINTENANCE & REPAIRS - PAH Comments: 3 gallons of Navy special fuel oil spilled due to improper procedures Reference: URS Consultants, Inc, 1/22/96, Ref. ID. 154	☐				
PETROLEUM LEAKS FROM SHIP MAINTENANCE & REPAIRS - PAH Comments: 1 gallon of Naval distallate fuel spilled due to monitoring error. Reference: URS Consultants, Inc, 1/22/96, Ref. ID. 154	☐				
PETROLEUM LEAKS FROM SHIP MAINTENANCE & REPAIRS - PAH Comments: 4 gallons of oil spilled from pier into waterway. Reference: URS Consultants, Inc, 1/22/96, Ref. ID. 154	☐				
PETROLEUM LEAKS FROM SHIP MAINTENANCE & REPAIRS - PAH Comments: 4 gallons of bilge oil spilled due to a structural failure Reference: URS Consultants, Inc, 1/22/96, Ref. ID. 154	☐				
PETROLEUM LEAKS/SPILLS - PAH Comments: Free product found in monitoring wells onsite. Reference: AGI Technologies, 10/27/95, Ref. ID. 155	☐				Yes
UST DIESEL - PAH Comments: Tank #4 contained 4,000 gallons of diesel #2 and was estimated to be 10 years old. No leakage detected during the excavation by hydrocarbon identification analysis (HCID). Reference: URS Consultants, Inc, 1/22/96, Ref. ID. 154	☐	1	4,000 gal.	D	
UST DIESEL - PAH Comments: Tank #5 contained 3,500 gallons of diesel #2 and was estimated to be 20-30 years old. TPH detected below cleanup levels. Reference: URS Consultants, Inc, 1/22/96, Ref. ID. 154	☐	1	3,500 gal.	D	
UST DIESEL - PAH Comments: Tank #3 contained 24,000 gallons of diesel #2 and was estimated to be 30+ years old. No leakage detected during excavation by hydrocarbon identification analysis (HCID). Reference: URS Consultants, Inc, 1/22/96, Ref. ID. 154	☐	1	24,000 gal.	D	
UST DIESEL - PAH Comments: Tank contained 12,000 gallons of diesel #2 and was estimated to be 30+ years old. Diesel was detected during excavation at 1980 ppm. Reference: URS Consultants, Inc, 1/22/96, Ref. ID. 154	☐	1	12,000 gal.	D	
UST DIESEL - PAH Comments: Tank contained 300 gallons of diesel #2 and was estimated to be 30+ years old. No leakage detected during excavation by hydrocarbon identification analysis (HCID). Reference: URS Consultants, Inc, 1/22/96, Ref. ID. 154	☐	1	300 gal.	D	

UST DIESEL - PAH ☐ 1 12,000 gal. D

Comments: Tank contained 12,000 gallons of diesel #2 and was estimated to be 30+ years old. No leakage detected during excavation by hydrocarbon identification analysis (HCID).

Reference: URS Consultants, Inc, 1/22/96, Ref. ID. 154

US GYPSUM

Segment: 2 **Map Reference #** 18

Initiation of Activities: 1/1/59 **End of Activities** **Notes:** Prior to 1959, site owned by American Rock Wool. From 1959 to present, site operated by US Gypsum for rock wool production.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
ASARCO SLAG USED AS BALLAST ON LOG SORT YARD - AS, CD, CU, DMP, PB, SB, ZN	1/1/59	12/31/73	☐				
MANUFACTURING ROCK WOOL - AS, CD, CR, CU, PB, SB, ZN	7/1/59	12/31/73	☐				
MANUFACTURING ROCK WOOL - AS, CD, CR, CU, PB, SB, ZN	7/1/59		☑				
MANUFACTURING ROCK WOOL - AS, CD, CR, CU, PB, SB, ZN			☐				
UST BUNKER C - PAH	1/1/45	12/31/92	☐	1	17,000 gal.	C	
UST DIESEL - PAH		7/1/98	☐	1	550 gal.	D	
UST GASOLINE - PAH	7/27/74	7/27/92	☐	1	1,000 gal.	G	

Comments: ASARCO slag was used as ballast under railroad tracks on the plant property.

Reference: McElroy, Christopher J, 6/30/89, Ref. ID. 64

Comments: Between 1959 and 1973, ASARCO slag was used as one of the raw materials in the rock wool manufacturing process.

Reference: AGI Technologies, 10/19/95, Ref. ID. 290

Comments: This operation produces mineral fiber insulation (also called rock wool). There are four main wastes generated from this process: shot from the cupola furnace, cupola bottom material (unmelted residue of raw materials), off-spec mineral wool product, and fine grain material from the baghouse collection system.

Reference: State of Washington Department of Ecology, 5/1/96, Ref. ID. 63

Comments: The reference states "From 1959 through 1973, ASARCO slag was used for feed stock. Baghouse dust and shot produced from ASARCO slag feed are known to contain high concentrations or arsenic, copper, lead, zinc, and other metals. Waste products from present-day feed stocks contain several trace materials, including chromium. The source of the elevated metals concentrations in the soils, storm water, and groundwater (as evidenced by seep data) of the Site is believed to be spent shot and baghouse dust, which was, and still is, deposited on the site between the production plant and the Hylebos Waterway."

Reference: State of Washington Department of Ecology, 3/1/94, Ref. ID. 291

Comments: Documented removal of a 17,000 gallon above ground storage tank which was estimated at 47 years of age upon removal. Until the late 60's the tank contained bunker-c oil which was used to fuel plant boilers. It was then converted to store dust reducing agents for the mineral fiber production process (Prorex 100, a light refined mineral oil, Mulrex 90, a petroleum and water emulsion). The tank was out of service approximately 3 years prior to its removal. Diesel range contamination was detected in surrounding soil during removal.

Reference: AGI Technologies, 3/19/97, Ref. ID. 65

Comments: A 550 gallon UST containing Diesel was removed from the site. Leakage and surrounding soil contamination was noted during removal.

Reference: Saybe Contractors, Inc, 5/4/98, Ref. ID. 280

Comments: A 1000 gallon UST containing Gasoline was removed from the site. Tank age was estimated to be at least 18 years. No information on leakage.

Reference: O'Sullivan Construction Inc, 6/23/92, Ref. ID. 281

US GYPSUM LANDFILL

Segment: 1 **Map Reference #** 9

Initiation of Activities: 1/1/71 **End of Activities** 12/31/84 **Notes:** Active from 1971 to 1979. Remediation complete in 1984.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
LANDFILLING OFF-SPECIFICATION MINERAL FIBER FROM U.S. GYPSUM - AS, CD, CR, CU, PB, SB, ZN		12/31/79	☐				
Comments: Dumped mineral fiber insulation that did not meet specification and was unsellable. Estimated concentration of As approximately 0.17%							
Reference: Kathy Vick, Hall & Associates, 6/12/84, Ref. ID. 37							
LANDFILLING U.S. GYPSUM BAGHOUSE DUST - AS, CD, CR, CU, PB, SB, ZN		12/31/79	☐				
Comments: Metals found at the site stemmed from the dumping of baghouse dust. Breakdown of the dust reveals approximately 21.7% As, 6.35% Pb, 6.2% Sb, 2.83% Zn, 1.03% Cu.							
Reference: United States Gypsum Company, 2/3/84, Ref. ID. 35							

WASSER WINTERS

Segment: 1 **Map Reference #** 1

Initiation of Activities: 1/1/72 **End of Activities** 12/31/95 **Notes:** Prior to 1972, Port owned and was vacant. From 1972 to 1984, log sorting operations by Wasser Winter. After 1984, vacant with remediation in the mid-1990s.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
ASARCO SLAG USED AS BALLAST ON LOG SORT YARD - AS, CD, CU, DMP, PB, SB, ZN	6/1/72	11/1/84	☐				
Comments: References a Dept. of Ecology Technical Memo which estimates metals loading to the Hylebos for As at 4.4 lbs./day, Zn at 1.5 lbs./day, Cu at 1.0 lbs./day, and Pb at 0.62 lbs./day. These values are somewhat misleading in that they do not reflect daily loading, only avg. loading during instantaneous flow events (i.e. heavy rainfall).							
Reference: Kennedy/Jenks Consultants, 7/29/91, Ref. ID. 3							
UST DIESEL - PAH	6/1/72	12/31/90	☐	1	1,000 gal.	D	
Comments: Moderate Petroleum Hydrocarbon contamination from one 1,000 gal. Diesel UST (removed by GeoEngineers 1990) and an equipment maintenance facility.							
Reference: State of Washington Department of Ecology, June 1993, Ref. ID. 2							

WEYERHAEUSER

Segment: 1 **Map Reference #** 10

Initiation of Activities: 1/1/70 **End of Activities** **Notes:** Prior to 1970, Kaiser owned the Tacoma Export Facility (TEF). Around 1972 Weyerhaeuser developed current log sort yard operation.

Activity SOC's	Start Date	End Date	Current	Tank #	Size	Contents	Free Product
EXTENSIVE VEHICLE OPERATIONS OR WASHING FACILITIES - PAH	1/1/72	12/31/86	☐				
Comments: Prior to 1986, all vehicle/truck wash water was discharged directly to ground without catch/recycle mechanisms in place.							
Reference: Weyerhaeuser, 3/8/93, Ref. ID. 16							
LOG SORT YARD WITHOUT ASARCO SLAG USED AS BALLAST - DMP	1/1/72		☑				
Comments: Site operations described as raw log debarking, sorting, grading, and export facility. The site was paved in the mid to late 70's and no ASARCO slag was used as ballast.							
Reference: Gross, John P, 4/13/93, Ref. ID. 15							
UST DIESEL - PAH		12/31/91	☐	5	22,500 gal.	GDW	Yes
Comments: 5 UST systems were identified on site and used for gasoline (1,000 gal.), diesel (10,000 gal. X2), waste oil (500 gal.), and vehicle wash oil residue (1,000 gal.). During removal of diesel tanks one was found to be leaking into the soil and shallow groundwater. The tanks were removed and the contaminated soil was excavated from the tank area along with detected free product.							
Reference: PTI Environmental Services, March 1993, Ref. ID. 17							

APPENDIX 3

Site Contamination Report

Site Contamination Report

This report is derived from the Hylebos Waterway Data Management System. The Site Contamination Report is a list of sites for which at least one instance of substance of concern (SOC) specific release/contamination has been identified. The report is arranged in alphabetical order by site name. The matrix or pathway in which the SOC was detected or may have been transported is shown below the label "Matrix/Pathway". Any concentration and quantity information related to the SOC detection is displayed below the labels "Conc.", "Conc. Units", "Qty.", and "Qty. Units" (if available).

The "Reference Information" box provides the location of the information and a description of the original source document, as follows:

- "Ecology Files" are files that were reviewed by the Allocation Team at the Washington Department of Ecology Southwest Regional Office in Olympia, WA. Copies of the relevant pages from these files were copied into the project files.

- "Kondrat Binders" are references that were collected in support of a report prepared by Robert Kondrat for NOAA. The number provided is the reference number assigned by Kondrat.

- "PRP Notebooks" are a set of notebooks containing a compilation of public information on Hylebos Waterway Potentially-Responsible Parties.

- SOC Distribution Maps refers to the maps provided in **Appendix 1** of this report.

When information was found to be incomplete, the following default strategies were implemented. Beginning dates defaulted to the first day of the year (e.g., if only 1970 was provided, then 1/1/70 was used as the default date), and ending dates defaulted to the last day of the year (e.g., only 1970 provided, then 12/31/70 was the assigned default date). Similarily, when a month and year were provided, the year and month were retained, and the date was adjusted to either the first or the last day of that month. If no beginning or ending dates were provided, these were left blank.

Bracketed text (i.e. [text]) within the "Comments" area indicates a conclusion reached by the reviewer. Quotes around text (i.e. "text") indicated wording exactly from the referenced document.

Site Contamination Report

1670 MARINE VIEW DR

Segment: 1 **Map Reference #:** 4

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units
BBPH	FOOTPRINT				
Comments:	Butylbenzyl phthalate footprint adjacent to site, BBPH5				
Reference:	Allocation Team, NA, Ref. ID. 261				
CU	FOOTPRINT				
Comments:	Copper footprint adjacent to site, CU1				
Reference:	Allocation Team, NA, Ref. ID. 261				
DMPH	FOOTPRINT				
Comments:	Dimethyl phthalate footprint adjacent to site, DMPH2				
Reference:	Allocation Team, NA, Ref. ID. 261				
HG	FOOTPRINT				
Comments:	Mercury footprint adjacent to site, HG1				
Reference:	Allocation Team, NA, Ref. ID. 261				
SB	FOOTPRINT				
Comments:	Antimony footprint adjacent to site, SB2				
Reference:	Allocation Team, NA, Ref. ID. 261				
TBT	FOOTPRINT				
Comments:	Tributyltin footprint adjacent to site, TBT1				
Reference:	Allocation Team, NA, Ref. ID. 261				
ZN	FOOTPRINT				
Comments:	Zinc footprint adjacent to site, ZN1				
Reference:	Allocation Team, NA, Ref. ID. 261				

3138 MARINE VIEW DR

Segment: 5 **Map Reference #:** 51

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units
HCBD	FOOTPRINT				
Comments:	Hexachlorobutadiene footprint adjacent to site, HCBD13				
Reference:	Allocation Team, NA, Ref. ID. 261				
HG	FOOTPRINT				
Comments:	Mercury footprint adjacent to site, HG14				
Reference:	Allocation Team, NA, Ref. ID. 261				
HG	FOOTPRINT				
Comments:	Mercury footprint adjacent to site, HG15				
Reference:	Allocation Team, NA, Ref. ID. 261				

PAH SOIL

Comments: During the Stage II peninsula investigation, TPH levels in soil samples from areas where crushed drums were discovered, was detected at 1200 ppm and 1800 ppm.

Reference: Landau Associates, Inc, 10/30/91, Ref. ID. 266

TCB FOOTPRINT

Comments: Trichlorobenzene footprint adjacent to site, TCB5

Reference: Allocation Team, NA, Ref. ID. 261

TCB FOOTPRINT

Comments: Trichlorobenzene footprint adjacent to site, TCB3

Reference: Allocation Team, NA, Ref. ID. 261

TCB FOOTPRINT

Comments: Trichlorobenzene footprint adjacent to site, TCB4

Reference: Allocation Team, NA, Ref. ID. 261

AIRO SERVICES

Segment: 4 **Map Reference #:** 42

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units

AS SURFACE WATER 50 ppb

Comments: A surface water sample taken 10/26/1993 from a catch basin on the northwest corner of the tank farm detected Arsenic at 50 ppb.

Reference: Rozmyn, Lisa, Marilou Pivirotto and Marc Pacifico, 3/21/00, Ref. ID. 205

BEPH SEDIMENT 4600 ppb

Comments: A sediment sample taken 06/27/1990 from a catch basin on the northwest corner of the tank farm detected BEPH at 4600 ppb.

Reference: Rozmyn, Lisa, Marilou Pivirotto and Marc Pacifico, 3/21/00, Ref. ID. 205

CR SURFACE WATER 41 ppb

Comments: A surface water sample taken 10/26/1993 from a catch basin on the northwest corner of the tank farm detected Chromium at 41 ppb.

Reference: Rozmyn, Lisa, Marilou Pivirotto and Marc Pacifico, 3/21/00, Ref. ID. 205

CU SURFACE WATER 44 ppb

Comments: A surface water sample taken 10/26/1993 from a catch basin on the northwest corner of the tank farm detected Copper at 44 ppb.

Reference: Rozmyn, Lisa, Marilou Pivirotto and Marc Pacifico, 3/21/00, Ref. ID. 205

PAH SEDIMENT

Comments: A sampling event conducted on 12/07/95 gathered samples from seven locations throughout the site. The laboratory analysis results of the sampling event reported deisel, and TPH were detected above their respective MTCA Method A Cleanup Levels for soils.

Reference: Rozmyn, Lisa, Marilou Pivirotto and Marc Pacifico, 3/21/00, Ref. ID. 205

PB SURFACE WATER 560 ppb

Comments: A surface water sample taken 10/26/1993 from a catch basin on the northwest corner of the tank farm detected Lead at 560 ppb.

Reference: Rozmyn, Lisa, Marilou Pivirotto and Marc Pacifico, 3/21/00, Ref. ID. 205

PCB SEDIMENT

Comments:

Reference: Rozmyn, Lisa, Marilou Pivirotto and Marc Pacifico, 3/21/00, Ref. ID. 205

ZN	SURFACE WATER	1240	ppb		

Comments: A surface water sample taken 10/26/1993 from a catch basin on the northwest corner of the tank farm detected Zinc at 1240 ppb.

Reference: Rozmyn, Lisa, Marilou Pivirotto and Marc Pacifico, 3/21/00, Ref. ID. 205

AK-WA SHIPBUILDING

Segment: 5 **Map Reference #:** 56

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units
AS	FOOTPRINT				

Comments: Arsenic footprint adjacent to site, AS16

Reference: Allocation Team, NA, Ref. ID. 261

AS	SURFACE WATER				

Comments: The copper slag used was from ASARCO and was contaminated with arsenic. The grit would have entered the waterway.

Reference: U.S. Environmental Protection Agency, November 1997, Ref. ID. 122

BBPH	FOOTPRINT				

Comments: Butylbenzyl phthalate footprint adjacent to site, BBPH20

Reference: Allocation Team, NA, Ref. ID. 261

BBPH	FOOTPRINT				

Comments: Butylbenzyl phthalate footprint adjacent to site, BBPH19

Reference: Allocation Team, NA, Ref. ID. 261

BEPH	FOOTPRINT				

Comments: Bis (2-ethylhexyl) phthalate footprint adjacent to site, BEPH11

Reference: Allocation Team, NA, Ref. ID. 261

CR	FOOTPRINT				

Comments: Chromium footprint adjacent to site, CR11

Reference: Allocation Team, NA, Ref. ID. 261

CR	SURFACE WATER				

Comments: Zinc chromate paints were often used to paint ships (see Jones & Goodell). Chromium from abraded steel ships would also have entered the waterway through the spent sandblasting grit.

Reference: Becker, Rocky, 8/24/89, Ref. ID. 168

CU	FOOTPRINT				

Comments: Copper footprint adjacent to site, CU12

Reference: Allocation Team, NA, Ref. ID. 261

CU	SURFACE WATER				

Comments: Kondrat describes 34 different NPDES violations for copper.

Reference: Smith, Richard, 5/6/94, Ref. ID. 166

DOPH	FOOTPRINT				

Comments: Di-n-octyl phthalate footprint adjacent to site, DOPH15

Reference: Allocation Team, NA, Ref. ID. 261

HCB	FOOTPRINT				

Comments: Hexachlorobenzene footprint adjacent to site, HCB6

Reference: Allocation Team, NA, Ref. ID. 261

MDCB FOOTPRINT

Comments: 1,3-dichlorobenzene footprint adjacent to site, MDCB15

Reference: Allocation Team, NA, Ref. ID. 261

NI SURFACE WATER

Comments: Sandblasting grit was known to have entered the waterway. Safety Blast, a nickel based grit was used.

Reference: Becker, Rocky, 8/24/89, Ref. ID. 168

PAH SURFACE WATER

Comments: Kondrat describes 18 different NPDES violations for oil & grease.

Reference: Smith, Richard, 5/6/94, Ref. ID. 166

PAH SURFACE WATER

Comments: Numerous direct releases of petroleum product to the Hylebos were documented. This reference is but one of many.

Reference: Manning, Brett (State of Washington Department of Ecology), 5/15/91, Ref. ID. 170

PB SURFACE WATER

Comments: Kondrat describes 6 different NPDES violations for lead.

Reference: Smith, Richard, 5/6/94, Ref. ID. 166

PCB UNKNOWN

Comments: [Given the prevalent use of PCB's in large-scale shipbuilding (pre 1979) and the previous use of this site by Tacoma Boatbuilding, it is highly likely that PCB's were generated during operations.]

Reference: U.S. Navy, March 1984, Ref. ID. 330

SB FOOTPRINT

Comments: Antimony footprint adjacent to site, SB12

Reference: Allocation Team, NA, Ref. ID. 261

TBT FOOTPRINT

Comments: Tributyltin footprint adjacent to site, TBT9

Reference: Allocation Team, NA, Ref. ID. 261

TBT SURFACE WATER

Comments: [Sandblasting grit was known to have entered the waterway and would have contained TBT from TBT painted boats being serviced.]

Reference: Hart Crowser, 1/9/97, Ref. ID. 115

ZN FOOTPRINT

Comments: Zinc footprint adjacent to site, ZN16

Reference: Allocation Team, NA, Ref. ID. 261

ZN SURFACE WATER

Comments: Kondrat describes 34 different NPDES violations for zinc.

Reference: Smith, Richard, 5/6/94, Ref. ID. 166

AOL EXPRESS

Segment: 4 **Map Reference #:** 79

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units	

PAH SOIL

Comments: Gasoline contamination discovered during UST removal.

Reference: Dames & Moore, 3/29/99, Ref. ID. 208

PAH SOIL

Comments: Diesel known to have reached the soil surface. No testing done.

Reference: Baroga, Enrico, 8/13/85, Ref. ID. 207

B&L WOODWASTE LANDFILL

Segment: 1 **Map Reference #:** 8

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units
AS	SOIL	26,900	ppb		
Comments:	As concentration in leachate sample of 26,900 ppb.				
Reference:	State of Washington Department of Ecology, 9/16/88, Ref. ID. 33				
CD	SOIL	0.8	ppb		
Comments:	Cd concentration in leachate sample of 0.8 ppb.				
Reference:	State of Washington Department of Ecology, 9/16/88, Ref. ID. 33				
CU	SOIL	93	ppb		
Comments:	Cu concentration in leachate sample of 93 ppb.				
Reference:	State of Washington Department of Ecology, 9/16/88, Ref. ID. 33				
PAH	SOIL				
Comments:	PAHs found in soil samples from site.				
Reference:	Golder Associates, 2/16/88, Ref. ID. 262				
PB	SOIL	115	ppb		
Comments:	Pb concentration in leachate sample of 115 ppb.				
Reference:	State of Washington Department of Ecology, 9/16/88, Ref. ID. 33				
SB	SOIL	53	ppb		
Comments:	Sb concentration in leachate sample of 53 ppb.				
Reference:	State of Washington Department of Ecology, 9/16/88, Ref. ID. 33				
ZN	SOIL	673	ppb		
Comments:	Zn concentration in leachate sample of 673 ppb.				
Reference:	State of Washington Department of Ecology, 9/16/88, Ref. ID. 33				

BONNEVILLE POWER

Segment: 1 **Map Reference #:** 15

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units
AS	SOIL				
Comments:	Found in sediment samples				
Reference:	CH2MHILL, Inc, 10/13/93, Ref. ID. 108				
CU	SOIL				
Comments:	Presumed constituent of baghouse dust.				
Reference:	Staff Writers, 8/20/96, Ref. ID. 13				
HG	SOIL				
Comments:	Presumed constituent of baghouse dust.				
Reference:	Staff Writers, 8/20/96, Ref. ID. 13				

PAH SOIL

Comments: Found in sediment samples

Reference: CH2MHILL, Inc, 10/13/93, Ref. ID. 108

PB SOIL

Comments: Presumed constituent of baghouse dust.

Reference: Staff Writers, 8/20/96, Ref. ID. 13

PCB SOIL

Comments: Describes the discharge of PCB contaminated oil directly onto the site.

Reference: Bonneveille Power Administration, 7/22/93, Ref. ID. 14

SB SOIL

Comments: Presumed constituent of baghouse dust.

Reference: Staff Writers, 8/20/96, Ref. ID. 13

ZN SOIL

Comments: Found in sediment samples

Reference: CH2MHILL, Inc, 10/13/93, Ref. ID. 108

BUFFELEN

Segment: 3 **Map Reference #:** 28

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units	

AS SOIL

Comments: Fifteen samples were taken along the inlet bank of the Hylebos beneath the Veneer Finishing plant. Composite samples revealed the presence of arsenic (22 to 63 ppm)

Reference: Hart Crowser, Inc, 4/6/88, Ref. ID. 109

CR SOIL

Comments: Fifteen samples were taken along the inlet bank of the Hylebos beneath the Veneer Finishing plant. Composite samples revealed the presence of chromium (22 to 27 ppm)

Reference: Hart Crowser, Inc, 4/6/88, Ref. ID. 109

CU FOOTPRINT

Comments: Copper footprint adjacent to site, CU6

Reference: Allocation Team, NA, Ref. ID. 261

CU SOIL

Comments: Fifteen samples were taken along the inlet bank of the Hylebos beneath the Veneer Finishing plant. Composite samples revealed the presence of copper (61 to 80 ppm)

Reference: Hart Crowser, Inc, 4/6/88, Ref. ID. 109

HG SOIL

Comments: Fifteen samples were taken along the inlet bank of the Hylebos beneath the Veneer Finishing plant. Composite samples revealed the presence of mercury (0.15 to 0.27 ppm)

Reference: Hart Crowser, Inc, 4/6/88, Ref. ID. 109

NI SOIL

Comments: Fifteen samples were taken along the inlet bank of the Hylebos beneath the Veneer Finishing plant. Composite samples revealed the presence of nickel (14 to 18 ppm)

Reference: Hart Crowser, Inc, 4/6/88, Ref. ID. 109

PAH SOIL

Comments: "Hart Crowser's 1989 Site Investigation revealed that polyaromatic hydrocarbons (PAHs) and other compounds common to wood treatment materials and carriers were identified in soil samples along with PCP."

Reference: Hart Crowser, 7/28/89, Ref. ID. 82

PB SOIL

Comments: Fifteen samples were taken along the inlet bank of the Hylebos beneath the Veneer Finishing plant. Composite samples revealed the presence of lead (44 to 52 ppm)

Reference: Hart Crowser, Inc, 4/6/88, Ref. ID. 109

PCB SOIL

Comments: Fifteen samples were taken along the inlet bank of the Hylebos beneath the Veneer Finishing plant. Composite samples revealed the presence of PCBs (0.17 to 0.29 ppm)

Reference: Hart Crowser, Inc, 4/6/88, Ref. ID. 109

PCP SOIL

Comments: "Hart Crowser's 1989 Site Investigation revealed that polyaromatic hydrocarbons (PAHs) and other compounds common to wood treatment materials and carriers were identified in soil samples along with PCP." In 1993, independent remedial actions were taken to clean up PCP contaminated soil. Approximately 100 cy were removed and backfilled with native soil. This action was not approved by WDOE.

Reference: Hart Crowser, 7/28/89, Ref. ID. 82

SB FOOTPRINT

Comments: Antimony footprint adjacent to site, SB4

Reference: Allocation Team, NA, Ref. ID. 261

TBT FOOTPRINT

Comments: Tributyltin footprint adjacent to site, TBT6

Reference: Allocation Team, NA, Ref. ID. 261

ZN SOIL

Comments: Fifteen samples were taken along the inlet bank of the Hylebos beneath the Veneer Finishing plant. Composite samples revealed the presence of zinc (1.2 to 150 ppm)

Reference: Hart Crowser, Inc, 4/6/88, Ref. ID. 109

CASCADE TIMBER (YARD #1)

Segment: 3 **Map Reference #:** 27

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units
AS	SURFACE WATER	0.22	mg/l		

Comments: A sample taken from from the waterway side of the berm revealed Arsenic.

Reference: Applied Geotechnology, Inc, 3/25/88, Ref. ID. 239

CU SURFACE WATER 2.6 mg/l

Comments: A grab sample taken at the edge of a slag pile on-site revealed Copper.

Reference: Applied Geotechnology, Inc, 3/25/88, Ref. ID. 239

PB SURFACE WATER 0.015 mg/l

Comments: A grab sample taken at the edge of a slag pile on-site revealed Lead.

Reference: Applied Geotechnology, Inc, 3/25/88, Ref. ID. 239

SB FOOTPRINT

Comments: Antimony footprint adjacent to site, SB7

Reference: Allocation Team, NA, Ref. ID. 261

TBT FOOTPRINT

Comments: Tributyltin footprint adjacent to site, TBT6

Reference: Allocation Team, NA, Ref. ID. 261

ZN SURFACE WATER 6.2 mg/l

Comments: A grab sample taken at the edge of a slag pile on-site revealed Zinc.

Reference: Applied Geotechnology, Inc, 3/25/88, Ref. ID. 239

CENEX AG

Segment: 4 **Map Reference #:** 50

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units

BBPH FOOTPRINT

Comments: Butylbenzyl phthalate footprint adjacent to site, BBPH12

Reference: Allocation Team, NA, Ref. ID. 261

PAH SOIL

Comments: Soil was tested and contained gasoline, diesel, and motor oil range hydrocarbons by WTPH methods.

Reference: Kleinfelder, Inc, 8/12/92, Ref. ID. 201

TBT FOOTPRINT

Comments: Tributyltin footprint adjacent to site, TBT6

Reference: Allocation Team, NA, Ref. ID. 261

CITY OF TACOMA (#1)

Segment: 4 **Map Reference #:** 95

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units

AS GROUND WATER

Comments:

Reference: Woodward-Clyde Consultants, 5/16/91, Ref. ID. 206

BEPH SOIL

Comments:

Reference: Woodward-Clyde Consultants, 5/16/91, Ref. ID. 206

PAH SOIL

Comments:

Reference: Woodward-Clyde Consultants, 5/16/91, Ref. ID. 206

PB GROUND WATER

Comments:

Reference: Woodward-Clyde Consultants, 5/16/91, Ref. ID. 206

CITY OF TACOMA (STEAM PLANT)

Segment: 4 **Map Reference #:** 44

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units

AS SOIL

Comments: ASARCO slag found in soils.

Reference: Gooding, Lynn, 4/4/91, Ref. ID. 189

BBPH	FOOTPRINT		
Comments:	Butylbenzyl phthalate footprint adjacent to site, BBPH15		
Reference:	Allocation Team, NA, Ref. ID. 261		
BBPH	FOOTPRINT		
Comments:	Butylbenzyl phthalate footprint adjacent to site, BBPH14		
Reference:	Allocation Team, NA, Ref. ID. 261		
CD	SOIL		
Comments:	ASARCO slag found in soils.		
Reference:	Gooding, Lynn, 4/4/91, Ref. ID. 189		
CU	SOIL		
Comments:	ASARCO slag found in soils.		
Reference:	Gooding, Lynn, 4/4/91, Ref. ID. 189		
DDD	FOOTPRINT		
Comments:	P,p'-ddd footprint adjacent to site, DDD6		
Reference:	Allocation Team, NA, Ref. ID. 261		
DMPH	FOOTPRINT		
Comments:	Dimethyl phthalate footprint adjacent to site, DMPH10		
Reference:	Allocation Team, NA, Ref. ID. 261		
DOPH	FOOTPRINT		
Comments:	Di-n-octyl phthalate footprint adjacent to site, DOPH13		
Reference:	Allocation Team, NA, Ref. ID. 261		
DOPH	FOOTPRINT		
Comments:	Di-n-octyl phthalate footprint adjacent to site, DOPH12		
Reference:	Allocation Team, NA, Ref. ID. 261		
HG	SOIL		
Comments:	Hg found in soils at 0.71 mg/kg.		
Reference:	Gooding, Lynn, 4/4/91, Ref. ID. 189		
PAH	SOIL		
Comments:	Soils were known to be contaminated with 300-400 ppm TPH		
Reference:	Post, Russell, 9/20/93, Ref. ID. 188		
PB	SOIL		
Comments:	ASARCO slag found in soils.		
Reference:	Gooding, Lynn, 4/4/91, Ref. ID. 189		
PCB	SOIL	660	ug/kg
Comments:	A sample taken from the City of Tacoma Steam Plant junction box showed total aroclor concentrations at 660 ug/kg dry weight.		
Reference:	Stinson, Margaret et al., State of Washington Department of Ecology, 3/1/87, Ref. ID. 282		

SB SOIL

Comments: ASARCO slag found in soils.

Reference: Gooding, Lynn, 4/4/91, Ref. ID. 189

ZN SOIL

Comments: ASARCO slag found in soils.

Reference: Gooding, Lynn, 4/4/91, Ref. ID. 189

DON OLINE AUTOFLUFF SITE

Segment: 3 **Map Reference #:** 23

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units

AS SOIL

Comments: Sampling and analysis confirmed contamination on-site.

Reference: Mercuri, Joyce, 3/4/93, Ref. ID. 93

BBPH FOOTPRINT

Comments: Butylbenzyl phthalate footprint adjacent to site, BBPH8

Reference: Allocation Team, NA, Ref. ID. 261

BBPH SEDIMENT 27,000J ppm

Comments: Sampling and analysis of intertidal sediment samples taken adjacent to the Site confirmed BBPH contamination.

Reference: EMCON Northwest, Inc, 1/26/95, Ref. ID. 92

BEPH FOOTPRINT

Comments: Bis (2-ethylhexyl) phthalate footprint adjacent to site, BEPH6

Reference: Allocation Team, NA, Ref. ID. 261

CD FOOTPRINT

Comments: Cadmium footprint adjacent to site, CD3

Reference: Allocation Team, NA, Ref. ID. 261

CD SOIL

Comments: Sampling and analysis confirmed contamination on-site.

Reference: EMCON Northwest, Inc, 1/26/95, Ref. ID. 92

CR FOOTPRINT

Comments: Chromium footprint adjacent to site, CR5

Reference: Allocation Team, NA, Ref. ID. 261

CU FOOTPRINT

Comments: Copper footprint adjacent to site, CU4

Reference: Allocation Team, NA, Ref. ID. 261

CU GROUND WATER 34 ppb

Comments: Ground water sampling detected copper at concentration of 34 ppb.

Reference: EMCON Northwest, Inc, 1/26/95, Ref. ID. 92

CU SEDIMENT 3890 ppm

Comments: Sampling and analysis performed on intertidal sediments adjacent to the Site reported CU concentrations as high as 3,890 ppm.

Reference: EMCON Northwest, Inc, 1/26/95, Ref. ID. 92

CU	SOIL	2820N	ppb
Comments:	On 09/08/92 WDOE inspected the site and took a composite sample of bank material. The composite was created from samples taken at three locations along the bank all within approximately 10 feet. Large pieces of metal or plastic were avoided during the collection process. The sample was analyzed and Copper concentration was reported at 2820N ppm.		
Reference:	Mercuri, Joyce, 11/18/92, Ref. ID. 293		
CU	SOIL	1866	ppm
Comments:	A sample taken from upland areas were ASR was deposited were reported to contain 1,866 ppm CU.		
Reference:	EMCON Northwest, Inc, 1/26/95, Ref. ID. 92		
DMP	FOOTPRINT		
Comments:	2,4-dimethylphenol footprint adjacent to site, DMP4		
Reference:	Allocation Team, NA, Ref. ID. 261		
DMP	FOOTPRINT		
Comments:	2,4-dimethylphenol footprint adjacent to site, DMP5		
Reference:	Allocation Team, NA, Ref. ID. 261		
DMPH	FOOTPRINT		
Comments:	Dimethyl phthalate footprint adjacent to site, DMPH9		
Reference:	Allocation Team, NA, Ref. ID. 261		
DMPH	SOIL	220	ppm
Comments:	Sampling and analysis confirmed contamination on-site.		
Reference:	EMCON Northwest, Inc, 1/26/95, Ref. ID. 92		
DOPH	FOOTPRINT		
Comments:	Di-n-octyl phthalate footprint adjacent to site, DOPH9		
Reference:	Allocation Team, NA, Ref. ID. 261		
HCBD	FOOTPRINT		
Comments:	Hexachlorobutadiene footprint adjacent to site, HCBD6		
Reference:	Allocation Team, NA, Ref. ID. 261		
HG	FOOTPRINT		
Comments:	Mercury footprint adjacent to site, HG10		
Reference:	Allocation Team, NA, Ref. ID. 261		
HG	SOIL	1.5	ppm
Comments:	Sampling and analysis confirmed contamination on-site.		
Reference:	EMCON Northwest, Inc, 1/26/95, Ref. ID. 92		
NI	FOOTPRINT		
Comments:	Nickel footprint adjacent to site, NI1		
Reference:	Allocation Team, NA, Ref. ID. 261		
NI	SOIL		
Comments:	Sampling and analysis confirmed contamination on-site.		
Reference:	EMCON Northwest, Inc, 1/26/95, Ref. ID. 92		

PB	FOOTPRINT					
Comments:	Lead footprint adjacent to site, PB3					
Reference:	Allocation Team, NA, Ref. ID. 261					
PB	SOIL					
Comments:	Sampling and analysis confirmed contamination on-site.					
Reference:	EMCON Northwest, Inc, 1/26/95, Ref. ID. 92					
PCB	SOIL					
Comments:	Sampling and analysis confirmed contamination on-site.					
Reference:	EMCON Northwest, Inc, 1/26/95, Ref. ID. 92					
SB	FOOTPRINT					
Comments:	Antimony footprint adjacent to site, SB6					
Reference:	Allocation Team, NA, Ref. ID. 261					
ZN	FOOTPRINT					
Comments:	Zinc footprint adjacent to site, ZN8					
Reference:	Allocation Team, NA, Ref. ID. 261					
ZN	SOIL					
Comments:	Sampling and analysis confirmed contamination on-site.					
Reference:	EMCON Northwest, Inc, 1/26/95, Ref. ID. 92					

DUNLAP TOWING

Segment: 2 **Map Reference #:** 20

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units
AS	FOOTPRINT				
Comments:	Arsenic footprint adjacent to site, AS6				
Reference:	Allocation Team, NA, Ref. ID. 261				
AS	SURFACE WATER	140,000	ppb		
Comments:	A 1981 WDOE surface water runoff analysis revealed concentrations of arsenic.				
Reference:	State of Washington Department of Ecology, 6/24/87, Ref. ID. 218				
BBPH	FOOTPRINT				
Comments:	Butylbenzyl phthalate footprint adjacent to site, BBPH7				
Reference:	Allocation Team, NA, Ref. ID. 261				
BEPH	FOOTPRINT				
Comments:	Bis (2-ethylhexyl) phthalate footprint adjacent to site, BEPH4				
Reference:	Allocation Team, NA, Ref. ID. 261				
CU	SURFACE WATER	90,000	ppb		
Comments:	A 1981 WDOE surface water runoff analysis revealed concentrations of copper.				
Reference:	State of Washington Department of Ecology, 6/24/87, Ref. ID. 218				
DMP	FOOTPRINT				
Comments:	2,4-dimethylphenol footprint adjacent to site, DMP2				
Reference:	Allocation Team, NA, Ref. ID. 261				

DMPH	FOOTPRINT			
Comments:	Dimethyl phthalate footprint adjacent to site, DMPH6			
Reference:	Allocation Team, NA, Ref. ID. 261			
DOPH	FOOTPRINT			
Comments:	Di-N-Octyl phthalate footprint adjacent to site, DOPH3			
Reference:	Allocation Team, NA, Ref. ID. 261			
HCBD	FOOTPRINT			
Comments:	Hexachlorobutadiene footprint adjacent to site, HCBD5			
Reference:	Allocation Team, NA, Ref. ID. 261			
MDCB	FOOTPRINT			
Comments:	1,3-dichlorobenzene footprint adjacent to site, MDCB5			
Reference:	Allocation Team, NA, Ref. ID. 261			
NI	SURFACE WATER	4,400	ppb	
Comments:	A 1981 WDOE surface water runoff analysis revealed concentrations of nickel.			
Reference:	State of Washington Department of Ecology, 6/24/87, Ref. ID. 218			
PAH	SOIL			
Comments:	Oil and diesel known to have contaminated soils.			
Reference:	Pierce, Richard (State of Washington Department of Ecology), 4/18/85, Ref. ID. 216			
PB	SURFACE WATER	81,000	ppb	
Comments:	A 1981 WDOE surface water runoff analysis revealed concentrations of lead.			
Reference:	State of Washington Department of Ecology, 6/24/87, Ref. ID. 218			
SB	FOOTPRINT			
Comments:	Antimony footprint adjacent to site, SB3			
Reference:	Allocation Team, NA, Ref. ID. 261			
SB	SURFACE WATER	1.3	mg/l	
Comments:	WDOE field investigations between 1987 and 1990 revealed the presence of antimony in surface water runoff basins.			
Reference:	State of Washington Department of Ecology, December 1991, Ref. ID. 213			
TBT	FOOTPRINT			
Comments:	Tributyltin footprint adjacent to site, TBT1			
Reference:	Allocation Team, NA, Ref. ID. 261			
ZN	FOOTPRINT			
Comments:	Zinc footprint adjacent to site, ZN4			
Reference:	Allocation Team, NA, Ref. ID. 261			
ZN	SURFACE WATER	120,000	ppb	
Comments:	A 1981 WDOE surface water runoff analysis revealed concentrations of zinc.			
Reference:	State of Washington Department of Ecology, 6/24/87, Ref. ID. 218			

ELF ATOCHEM **Segment:** 2 **Map Reference #:** 19

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units	

AS	FOOTPRINT			
Comments:	Arsenic footprint adjacent to site, AS8			
Reference:	Allocation Team, NA, Ref. ID. 261			
AS	GROUND WATER			
Comments:	An investigation by SECOR states that estimates of the total quantity of arsenic that was deposited in the lagoons over a fifteen year period range from 600 to 12,000 tons of arsenic, which is equivalent to the discharge of 246 to 4,000 lbs. of arsenic per day.			
Reference:	SECOR International, Inc, 4/9/96, Ref. ID. 112			
BBPH	FOOTPRINT			
Comments:	Butylbenzyl phthalate footprint adjacent to site, BBPH8			
Reference:	Allocation Team, NA, Ref. ID. 261			
BEPH	FOOTPRINT			
Comments:	Bis (2-ethylhexyl) phthalate footprint adjacent to site, BEPH5			
Reference:	Allocation Team, NA, Ref. ID. 261			
BEPH	GROUND WATER	28	ppb	
Comments:	BEPH was detected in the discharge of the East seep along the bank.			
Reference:	Yake, Bill (State of Washington Department of Ecology), 3/9/82, Ref. ID. 231			
CD	GROUND WATER			
Comments:	In 1981, cadmium was detected in the ground water of ten wells with concentrations ranging from 2 to 15 ppb.			
Reference:	Pennwalt Corporation, 7/1/81, Ref. ID. 235			
CR	FOOTPRINT			
Comments:	Chromium footprint adjacent to site, CR4			
Reference:	Allocation Team, NA, Ref. ID. 261			
CR	PLANT EFFLUENT	75,000	gallons	
Comments:	A 180,000 gallon storage tank ruptured releasing sodium chlorate which contained 4-5 mg/l sodium dichromate. According to Pennwalt, the estimated weight of leachable chromium for the spill was reported to be 66.45 lbs.			
Reference:	Ecology & Environment, Inc, November 1987, Ref. ID. 230			
CU	SEDIMENT	> 1,000	ppm	
Comments:	In 1980, the EPA analyzed three samples which revealed copper concentrations in excess of 1,000 ppm.			
Reference:	Johnson, Art and Shirley Prescott, 3/15/82, Ref. ID. 232			
DDD	SEDIMENT	150	ppb	
Comments:	DDD was detected in the sediments of the site sewer system. (dry weight concentration reported)			
Reference:	Yake, Bill (State of Washington Department of Ecology), 3/9/82, Ref. ID. 231			
DDE	FOOTPRINT			
Comments:	P,p'-dde footprint adjacent to site, DDE6			
Reference:	Allocation Team, NA, Ref. ID. 261			
DDE	FOOTPRINT			
Comments:	P,p'-dde footprint adjacent to site, DDE5			
Reference:	Allocation Team, NA, Ref. ID. 261			

DDE	SEDIMENT	0.62	ppb
Comments:	DDE was detected in the sediments of the site sewer system. (dry weight concentration reported)		
Reference:	Yake, Bill (State of Washington Department of Ecology), 3/9/82, Ref. ID. 231		
DDT	FOOTPRINT		
Comments:	P,p'-ddt footprint adjacent to site, DDT1		
Reference:	Allocation Team, NA, Ref. ID. 261		
DDT	SEDIMENT	4.1	ppb
Comments:	DDT was detected in the sediments of the site sewer system. (dry weight concentration reported)		
Reference:	Yake, Bill (State of Washington Department of Ecology), 3/9/82, Ref. ID. 231		
DMP	FOOTPRINT		
Comments:	2,4-dimethylphenol footprint adjacent to site, DMP3		
Reference:	Allocation Team, NA, Ref. ID. 261		
DMPH	FOOTPRINT		
Comments:	Dimethyl phthalate footprint adjacent to site, DMPH7		
Reference:	Allocation Team, NA, Ref. ID. 261		
DOPH	FOOTPRINT		
Comments:	Di-n-octyl phthalate footprint adjacent to site, DOPH7		
Reference:	Allocation Team, NA, Ref. ID. 261		
HCB	FOOTPRINT		
Comments:	Hexachlorobenzene footprint adjacent to site, HCB1		
Reference:	Allocation Team, NA, Ref. ID. 261		
HCBD	FOOTPRINT		
Comments:	Hexachlorobutadiene footprint adjacent to site, HCBD6		
Reference:	Allocation Team, NA, Ref. ID. 261		
HCBD	GROUND WATER		
Comments:	The 1981 WDOE class II survey found that ground water bank seeps were discharging HCBD at concentrations ranging from 4.8 to 8.7 ppb.		
Reference:	Yake, Bill (State of Washington Department of Ecology), 3/9/82, Ref. ID. 231		
HG	FOOTPRINT		
Comments:	Mercury footprint adjacent to site, HG8		
Reference:	Allocation Team, NA, Ref. ID. 261		
HG	PLANT EFFLUENT	2.6	ppb
Comments:	WDOE analysis of the plant's outfall effluent revealed the presence of mercury.		
Reference:	Bishop, Bob (State of Washington Department of Ecology), 12/17/71, Ref. ID. 234		
MDCB	FOOTPRINT		
Comments:	1,3-dichlorobenzene footprint adjacent to site, MDCB9		
Reference:	Allocation Team, NA, Ref. ID. 261		

MDCB	FOOTPRINT					
Comments:	1,3-dichlorobenzene footprint adjacent to site, MDCB7					
Reference:	Allocation Team, NA, Ref. ID. 261					
MDCB	FOOTPRINT					
Comments:	1,3-dichlorobenzene footprint adjacent to site, MDCB8					
Reference:	Allocation Team, NA, Ref. ID. 261					
MDCB	FOOTPRINT					
Comments:	1,3-dichlorobenzene footprint adjacent to site, MDCB10					
Reference:	Allocation Team, NA, Ref. ID. 261					
NI	GROUND WATER					
Comments:	In 1981, nickel was detected in the ground water of three wells with concentrations ranging from 7 to 14 ppb.					
Reference:	Pennwalt Corporation, 7/1/81, Ref. ID. 235					
PAH	SEDIMENT					
Comments:	The Tetra Tech remedial investigation report states "The highest level of LPAH contamination (on a dry-weight basis) found in Hylebos Waterway during the Tetra Tech survey was observed immediately adjacent to the Pennwalt dock and discharge point of the plant effluent."					
Reference:	Tetra Tech, Inc, 1985, Ref. ID. 7					
PAH	SOIL	28,000	ppm	15,000	cy	
Comments:	in 1997, approximately 15,000 cubic yards of soil on Atofina's Wypenn Site was contaminated with Bunker C fuel oil and has since undergone remediation efforts. Estimated average TPH concentration of these soils were 28,000 ppm.					
Reference:	Wolf, Fredrick and Rodgers, William, 4/20/01, Ref. ID. 238					
PAH	SURFACE WATER					
Comments:	In 1976 the U.S. Coast Guard documented a 12 x 25 yard sheen originating from a Bunker C oil spill at the Pennwalt Corp. facility.					
Reference:	State of Washington Department of Ecology, 7/31/76, Ref. ID. 8					
PB	PLANT EFFLUENT					
Comments:	The 1985 Tetra Tech remedial investigation stated the calculated average copper concentrations from the main outfall to be 0.16 lb./day.					
Reference:	Tetra Tech, Inc, 1985, Ref. ID. 7					
PCB	SOIL					
Comments:	Samples taken in 1990 found PCB's in 17 of 36 samples, with concentrations ranging from 12.8 to 28.7 ppm TOC.					
Reference:	Boateng & Associates, Inc, 10/1/90, Ref. ID. 237					
PCB	SOIL					
Comments:	Two soil samples taken in April, 1985 from an area near site electrical transformers contained Aroclor-1260 at concentrations of 8700 ppb, and 11,600 ppb. Another sample taken from the same location contained Aroclor-1254 at a concentration of 4200 ppb.					
Reference:	Schlender, Mike, 4/16/85, Ref. ID. 236					
SB	FOOTPRINT					
Comments:	Antimony footprint adjacent to site, SB4					
Reference:	Allocation Team, NA, Ref. ID. 261					
SB	FOOTPRINT					
Comments:	Antimony footprint adjacent to site, SB3					
Reference:	Allocation Team, NA, Ref. ID. 261					

SB	GROUND WATER				
Comments:	In 1981, antimony was detected in the ground water of four wells with concentrations ranging from 20 to 50 ppb.				
Reference:	Pennwalt Corporation, 7/1/81, Ref. ID. 235				
TBT	FOOTPRINT				
Comments:	Tributyltin footprint adjacent to site, TBT4				
Reference:	Allocation Team, NA, Ref. ID. 261				
TBT	FOOTPRINT				
Comments:	Tributyltin footprint adjacent to site, TBT3				
Reference:	Allocation Team, NA, Ref. ID. 261				
ZN	FOOTPRINT				
Comments:	Zinc footprint adjacent to site, ZN6				
Reference:	Allocation Team, NA, Ref. ID. 261				
ZN	GROUND WATER	240	ppb		
Comments:	Zinc was detected in the ground water coming from a bank seep on the site. (average concentration reported)				
Reference:	Johnson, Art and Shirley Prescott, 3/15/82, Ref. ID. 232				

EXECUTIVE MARINE SERVICES

Segment: 4 **Map Reference #:** 43

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units
BBPH	FOOTPRINT				
Comments:	Butylbenzyl phthalate footprint adjacent to site, BBPH12				
Reference:	Allocation Team, NA, Ref. ID. 261				

GENERAL METALS OF TACOMA

Segment: 2 **Map Reference #:** 16

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units
AG	SOIL	5.4	mg/kg		
Comments:	Silver was detected in subsurface soil sample.				
Reference:	EMCON Northwest, Inc, 11/30/92, Ref. ID. 81				
AS	FOOTPRINT				
Comments:	Arsenic footprint adjacent to site, AS9				
Reference:	Allocation Team, NA, Ref. ID. 261				
AS	FOOTPRINT				
Comments:	Arsenic footprint adjacent to site, AS7				
Reference:	Allocation Team, NA, Ref. ID. 261				
AS	SURFACE WATER				
Comments:	Surface water runoff which drained to the waterway was documented as containing arsenic.				
Reference:	U.S. Environmental Protection Agency, 1/25/93, Ref. ID. 79				
BBPH	FOOTPRINT				
Comments:	Butylbenzyl phthalate footprint adjacent to site, BBPH7				
Reference:	Allocation Team, NA, Ref. ID. 261				

BBPH	FOOTPRINT		
Comments:	Butylbenzyl phthalate footprint adjacent to site, BBPH8		
Reference:	Allocation Team, NA, Ref. ID. 261		
BBPH	SURFACE WATER	55	ppb
Comments:	The report shows surface water samples contained detectable amounts of BEPH.		
Reference:	Sweet-Edwards/EMCON, Inc, 7/18/88, Ref. ID. 245		
BEPH	FOOTPRINT		
Comments:	Bis (2-ethylhexyl) phthalate footprint adjacent to site, BEPH3		
Reference:	Allocation Team, NA, Ref. ID. 261		
BEPH	SURFACE WATER	1100	ug/l
Comments:	The report shows surface water samples analyzed March 5 and 8 contained detectable amounts of BEPH.		
Reference:	Sweet-Edwards/EMCON, Inc, 7/18/88, Ref. ID. 245		
CD	FOOTPRINT		
Comments:	Cadmium footprint adjacent to site, CD2		
Reference:	Allocation Team, NA, Ref. ID. 261		
CD	FOOTPRINT		
Comments:	Cadmium footprint adjacent to site, CD1		
Reference:	Allocation Team, NA, Ref. ID. 261		
CD	SOIL	44	mg/kg
Comments:	Cadmium was detected in subsurface soil sample.		
Reference:	EMCON Northwest, Inc, 11/30/92, Ref. ID. 81		
CR	FOOTPRINT		
Comments:	Chromium footprint adjacent to site, CR2		
Reference:	Allocation Team, NA, Ref. ID. 261		
CR	FOOTPRINT		
Comments:	Chromium footprint adjacent to site, CR3		
Reference:	Allocation Team, NA, Ref. ID. 261		
CR	SOIL	360	mg/kg
Comments:	Chromium was detected in a soil sample.		
Reference:	EMCON Northwest, Inc, 11/30/92, Ref. ID. 81		
CU	SURFACE WATER		
Comments:	Surface water runoff which drained to the waterway was documented as containing copper.		
Reference:	U.S. Environmental Protection Agency, 1/25/93, Ref. ID. 79		
DDE	FOOTPRINT		
Comments:	P,p'-dde footprint adjacent to site, DDE6		
Reference:	Allocation Team, NA, Ref. ID. 261		

DOPH	FOOTPRINT		
Comments:	Di-n-octyl phthalate footprint adjacent to site, DOPH3		
Reference:	Allocation Team, NA, Ref. ID. 261		
HCBD	FOOTPRINT		
Comments:	Hexachlorobutadiene footprint adjacent to site, HCBD6		
Reference:	Allocation Team, NA, Ref. ID. 261		
HG	FOOTPRINT		
Comments:	Mercury footprint adjacent to site, HG6		
Reference:	Allocation Team, NA, Ref. ID. 261		
HG	FOOTPRINT		
Comments:	Mercury footprint adjacent to site, HG7		
Reference:	Allocation Team, NA, Ref. ID. 261		
HG	SURFACE WATER		
Comments:	Surface water runoff which drained to the waterway was documented as containing mercury.		
Reference:	U.S. Environmental Protection Agency, 1/25/93, Ref. ID. 79		
MDCB	FOOTPRINT		
Comments:	1,3-dichlorobenzene footprint adjacent to site, MDCB6		
Reference:	Allocation Team, NA, Ref. ID. 261		
MDCB	FOOTPRINT		
Comments:	1,3-dichlorobenzene footprint adjacent to site, MDCB7		
Reference:	Allocation Team, NA, Ref. ID. 261		
NI	SURFACE WATER		
Comments:	Surface water runoff which drained to the waterway was documented as containing nickel.		
Reference:	U.S. Environmental Protection Agency, 1/25/93, Ref. ID. 79		
PAH	SOIL		
Comments:	Visible evidence of petroleum contamination was observed in the first foot of soil upon excavation of a waste oil tank. However, the contamination was believed to have been generated by either vehicle oil changing or the cleaning of engine parts.		
Reference:	Dunn, Patrick F, 5/4/88, Ref. ID. 246		
PAH	SURFACE WATER		
Comments:	Surface water runoff which drained to the waterway was documented as containing PAHs.		
Reference:	U.S. Environmental Protection Agency, 1/25/93, Ref. ID. 79		
PAH	SURFACE WATER		
Comments:	A bunker C oil spill affecting approximately 3/4 to 1/2 mile long stretch of the waterway was reported by the U.S. Coast Guard. The complaint form states that General metals was the suspected source of the oil.		
Reference:	Baker, Craig and Brett Betts, 6/13/80, Ref. ID. 249		
PAH	SURFACE WATER	15	mg/l
Comments:	NPDES maximum limit for oil & grease was exceeded.		
Reference:	Pacifico, Marc (State of Washington Department of Ecology), 8/29/94, Ref. ID. 242		

PB	SURFACE WATER		
Comments:	Surface water runoff which drained to the waterway was documented as containing lead.		
Reference:	U.S. Environmental Protection Agency, 1/25/93, Ref. ID. 79		
PCB	GROUND WATER	0.0011	mg/l
Comments:	PCBs were detected in the ground water.		
Reference:	Sweet-Edwards/EMCON, Inc, 7/18/88, Ref. ID. 245		
PCB	SEDIMENT		
Comments:	The highest total PCB concentrations detected in the Hylebos Waterway were found in samples taken from the General Metals site (21,000 to 31,000 ppb dry weight)		
Reference:	Stinson, Margaret et al., State of Washington Department of Ecology, 3/1/87, Ref. ID. 282		
PCB	SEDIMENT		
Comments:	A sample taken from catch basin # 1 found Aroclor 1242 (7,300 ppb), Aroclor 1248 (6,900 ppb), Aroclor 1254 (15,000 ppb), and Aroclor 1260 (4,400 ppb).		
Reference:	Stinson, Margaret et al., State of Washington Department of Ecology, 3/1/87, Ref. ID. 282		
PCB	SOIL		
Comments:	PCBs were detected in soils near the bale pile at levels ranging from 18 ppm to 32 ppm.		
Reference:	Sweet-Edwards/EMCON, Inc, 7/18/88, Ref. ID. 245		
PCB	SURFACE WATER		
Comments:	Surface water runoff which drained to the waterway was documented as containing PCBs.		
Reference:	U.S. Environmental Protection Agency, 1/25/93, Ref. ID. 79		
PCB	SURFACE WATER		
Comments:	PCBs were detected in the storm water runoff sumps at levels ranging from 0.008 to 0.188 mg/l.		
Reference:	Sweet-Edwards/EMCON, Inc, 7/18/88, Ref. ID. 245		
PCP	SURFACE WATER	0.019	mg/l
Comments:	Sampling of storm water runoff revealed pentachlorophenol.		
Reference:	Sweet-Edwards/EMCON, Inc, 7/18/88, Ref. ID. 245		
SB	FOOTPRINT		
Comments:	Antimony footprint adjacent to site, SB3		
Reference:	Allocation Team, NA, Ref. ID. 261		
SB	SOIL	53	mg/kg
Comments:	Antimony was detected in a soil sample.		
Reference:	EMCON Northwest, Inc, 11/30/92, Ref. ID. 81		
TBT	FOOTPRINT		
Comments:	Tributyltin footprint adjacent to site, TBT2		
Reference:	Allocation Team, NA, Ref. ID. 261		
ZN	FOOTPRINT		
Comments:	Zinc footprint adjacent to site, ZN5		
Reference:	Allocation Team, NA, Ref. ID. 261		

ZN SURFACE WATER

Comments: Surface water runoff which drained to the waterway was documented as containing zinc.

Reference: U.S. Environmental Protection Agency, 1/25/93, Ref. ID. 79

GENES BARK & TRANSPORT

Segment: 3 **Map Reference #:** 26

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units

BBPH FOOTPRINT

Comments: Butylbenzyl phthalate footprint adjacent to site, BBPH8

Reference: Allocation Team, NA, Ref. ID. 261

HYLEBOS MARINA

Segment: 3 **Map Reference #:** 22

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units

BBPH FOOTPRINT

Comments: Butylbenzyl phthalate footprint adjacent to site, BBPH8

Reference: Allocation Team, NA, Ref. ID. 261

CU SURFACE WATER 7.193 mg/l

Comments: Analysis of wastewater from boat hull washing detected Cu. Reference also indicates that this material is reaching the waterway via a private storm drain.

Reference: Getchell, Christopher L, 12/23/86, Ref. ID. 91

DMP FOOTPRINT

Comments: 2,4-dimethylphenol footprint adjacent to site, DMP4

Reference: Allocation Team, NA, Ref. ID. 261

DMPH FOOTPRINT

Comments: Dimethyl phthalate footprint adjacent to site, DMPH8

Reference: Allocation Team, NA, Ref. ID. 261

DOPH FOOTPRINT

Comments: Di-n-octyl phthalate footprint adjacent to site, DOPH8

Reference: Allocation Team, NA, Ref. ID. 261

HCBD FOOTPRINT

Comments: Hexachlorobutadiene footprint adjacent to site, HCBD6

Reference: Allocation Team, NA, Ref. ID. 261

HG FOOTPRINT

Comments: Mercury footprint adjacent to site, HG9

Reference: Allocation Team, NA, Ref. ID. 261

SB FOOTPRINT

Comments: Antimony footprint adjacent to site, SB5

Reference: Allocation Team, NA, Ref. ID. 261

TBT FOOTPRINT

Comments: Tributyltin footprint adjacent to site, TBT4

Reference: Allocation Team, NA, Ref. ID. 261

ZN	SURFACE WATER	5322.449	mg/l			

Comments: Analysis of wastewater from boat hull washing detected Zn. Reference also indicates that this material is reaching the waterway via a private storm drain.

Reference: Getchell, Christopher L, 12/23/86, Ref. ID. 91

JONES & GOODELL BOATBUILDING

Segment: 1 **Map Reference #:** 5

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units
AS	SOIL	18.1	mg/kg		

Comments: Sandblast grit removed. Sample Analysis reported 18.1 mg/kg As.

Reference: Mercuri, Joyce, May 1992, Ref. ID. 103

AS	SOIL	100 - 510	ppm		

Comments: Results of site soil sampling conducted on the property in 1996 and 1997 revealed arsenic concentrations from two samples above the Commencement Bay Sediment Quality Objective of 57 ppm. One sample contained 510 ppm, and the another 100 ppm.

Reference: Smith, Dave (State of Washington Department of Ecology), 9/30/99, Ref. ID. 332

BBPH	FOOTPRINT				

Comments: Butylbenzyl phthalate footprint adjacent to site, BBPH5

Reference: Allocation Team, NA, Ref. ID. 261

CD	SURFACE WATER	0.042	ppm		

Comments: Cd reported at 0.042 ppm

Reference: Applied Geotechnology Inc, 10/2/90, Ref. ID. 102

CR	SOIL	110	mg/kg		

Comments: Analysis of grab sample detected chromium at 110 mg/kg.

Reference: Dames & Moore, 9/6/96, Ref. ID. 48

CR	SURFACE WATER	0.19	ppm		

Comments: Cr reported at 0.19 ppm

Reference: Applied Geotechnology Inc, 10/2/90, Ref. ID. 102

CU	FOOTPRINT				

Comments: Copper footprint adjacent to site, CU1

Reference: Allocation Team, NA, Ref. ID. 261

CU	SOIL	1290	mg/kg		

Comments: Sandblast grit removed. Cu detected at 1290 mg/kg

Reference: Mercuri, Joyce, May 1992, Ref. ID. 103

CU	SOIL	1290	mg/kg		

Comments: Samples taken of the grit/sediment used as fill behind the bulkhead showed levels of Copper above the Commencement Bay sediment quality objectives of 390 mg/kg.

Reference: Smith, Dave (State of Washington Department of Ecology), 9/30/99, Ref. ID. 332

CU	SURFACE WATER	22.49	ppm		

Comments: Cu reported at 22.49 ppm

Reference: Applied Geotechnology Inc, 10/2/90, Ref. ID. 102

DMPH	FOOTPRINT		
Comments:	Dimethyl phthalate footprint adjacent to site, DMPH2		
Reference:	Allocation Team, NA, Ref. ID. 261		
HG	FOOTPRINT		
Comments:	Mercury footprint adjacent to site, HG1		
Reference:	Allocation Team, NA, Ref. ID. 261		
HG	FOOTPRINT		
Comments:	Mercury footprint adjacent to site, HG2		
Reference:	Allocation Team, NA, Ref. ID. 261		
HG	SOIL	1.9	mg/kg
Comments:	Sediment grab sample yielded Mercury concentration of 1.9 mg/kg.		
Reference:	Dames & Moore, 8/22/97, Ref. ID. 287		
NI	SEDIMENT	18.3	mg/kg
Comments:	Analysis of a grit/sediment mixture revealed Ni conc. at 18.3 mg/kg (below the Hylebos waterway sediment cleanup objective of >140 mg/kg.)		
Reference:	Mercuri, Joyce, May 1992, Ref. ID. 103		
NI	SURFACE WATER	0.058	ppm
Comments:	Nickel reported at 0.058 ppm		
Reference:	Applied Geotechnology Inc, 10/2/90, Ref. ID. 102		
PAH	SOIL	1300	mg/kg
Comments:	Analysis of grab sample detected trace levels of TPH as gasoline (19 mg/kg), and elevated levels of TPH as diesel (480 mg/kg), and heavy oil (1,300 mg/kg).		
Reference:	Dames & Moore, 9/6/96, Ref. ID. 48		
PAH	SOIL	250 - 570	ppm
Comments:	Results of site soil sampling conducted on the property in 1996 and 1997 revealed heavy oil concentrations from four samples above the MTCA Level A Cleanup Level of 200 ppm. The concentrations of the samples ranged from 250 to 570 ppm.		
Reference:	Smith, Dave (State of Washington Department of Ecology), 9/30/99, Ref. ID. 332		
PAH	SURFACE WATER	716.7	ppm
Comments:	Oil and Grease measured at the upstream end of the boat washdown treatment tank.		
Reference:	Applied Geotechnology Inc, 10/2/90, Ref. ID. 102		
PB	SOIL	300	mg/kg
Comments:	Analysis of grab sample detected lead at 300 mg/kg.		
Reference:	Dames & Moore, 9/6/96, Ref. ID. 48		
SB	FOOTPRINT		
Comments:	Antimony footprint adjacent to site, SB2		
Reference:	Allocation Team, NA, Ref. ID. 261		
TBT	FOOTPRINT		
Comments:	Tributyltin footprint adjacent to site, TBT1		
Reference:	Allocation Team, NA, Ref. ID. 261		

ZN	FOOTPRINT			
Comments:	Zinc footprint adjacent to site, ZN1			
Reference:	Allocation Team, NA, Ref. ID. 261			
ZN	SOIL	247	mg/kg	
Comments:	Waste sandblast grit was observed on the site surface, as fill behind a concrete bulkhead on the SouthEast side of the marine railway, and in the tidal sediments adjacent to the marine railway. Samples of the grit/sediment mixture were taken.			
Reference:	Mercuri, Joyce, May 1992, Ref. ID. 103			
ZN	SURFACE WATER	0.97	mg/kg	
Comments:	Analysis of washdown water treatment system detected Zinc in the effluent.			
Reference:	Applied Geotechnology Inc, 10/2/90, Ref. ID. 102			

JONES CHEMICAL

Segment: 2 **Map Reference #:** 101

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units
BBPH	FOOTPRINT				
Comments:	Butylbenzyl phthalate footprint adjacent to site, BBPH8				
Reference:	Allocation Team, NA, Ref. ID. 261				
BEPH	FOOTPRINT				
Comments:	Bis (2-ethylhexyl) phthalate footprint adjacent to site, BEPH5				
Reference:	Allocation Team, NA, Ref. ID. 261				

JOSEPH SIMON & SONS

Segment: 4 **Map Reference #:** 48

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units
AS	SOIL	6,920	mg/kg		
Comments:	A sample taken from the beach area was contaminated with Arsenic (6,920 mg/kg)				
Reference:	Kennedy Jenks Consultants, 6/29/98, Ref. ID. 199				
BBPH	FOOTPRINT				
Comments:	Butylbenzyl phthalate footprint adjacent to site, BBPH12				
Reference:	Allocation Team, NA, Ref. ID. 261				
BEPH	FOOTPRINT				
Comments:	Bis (2-ethylhexyl) phthalate footprint adjacent to site, BEPH8				
Reference:	Allocation Team, NA, Ref. ID. 261				
BEPH	SOIL				
Comments:	A sample taken from the intertidal area adjacent to the site contained BEPH.				
Reference:	Kennedy Jenks Consultants, 6/29/98, Ref. ID. 199				
CU	SOIL	3,000	mg/kg		
Comments:	A sample taken from the beach area was contaminated with Copper (3,000 mg/kg)				
Reference:	Kennedy Jenks Consultants, 6/29/98, Ref. ID. 199				
HG	SOIL	0.06	mg/kg		
Comments:	A sample taken from the beach area was contaminated with Mercury (0.06 mg/kg)				
Reference:	Kennedy Jenks Consultants, 6/29/98, Ref. ID. 199				

PAH	SOIL	24,000	mg/kg		
Comments:	A sample from a test pit was analyzed for TPH as Diesel and found to contain 24,000 mg/kg.				
Reference:	Kennedy Jenks Consultants, 6/29/98, Ref. ID. 199				
PB	SOIL	7,900	mg/kg		
Comments:	A sample taken from the beach area was contaminated with Lead (7,900 mg/kg)				
Reference:	Kennedy Jenks Consultants, 6/29/98, Ref. ID. 199				
PCB	SOIL	1.11	mg/kg		
Comments:	A sample taken from a test pit was analyzed for Total PCB's and found to contain 1.11 mg/kg				
Reference:	Kennedy Jenks Consultants, 6/29/98, Ref. ID. 199				
SB	FOOTPRINT				
Comments:	Antimony footprint adjacent to site, SB7				
Reference:	Allocation Team, NA, Ref. ID. 261				
ZN	SOIL	16,800	mg/kg		
Comments:	A sample taken from the beach area was contaminated with Zinc (16,800 mg/kg)				
Reference:	Kennedy Jenks Consultants, 6/29/98, Ref. ID. 199				

KAISER ALUMINUM & CHEMICAL

Segment: 1 **Map Reference #:** 14

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units
PAH	BURIAL/PONDED				
Comments:	Twice in 1968 and in 1971, while moving a portion of the wet scrubber sludge on the Kaiser property, an unknown amount of the sludge was released to the Hylebos waterway via the Kaiser ditch. The scrubber sludge was known to contain PAH's.				
Reference:	Beveridge, R. Paul, 5/26/89, Ref. ID. 50				
PAH	SEDIMENT				
Comments:	The reference states that prior to remediation, the total concentrations of PAH in the Kaiser ditch ranged from 13.5 to 205.9 ppm. In 1990 WDOE concluded that the only ongoing pathway of PAH contamination from the Kaiser property to the Hylebos was stormwater carrying contaminated sludge particles through the Kaiser ditch from settling ponds.				
Reference:	Striplin Environmental Associates, Inc, 1/11/95, Ref. ID. 256				
PAH	SOIL				
Comments:	Describes presence of PAH's in on-site soil samples.				
Reference:	State of Washington Department of Ecology, December 1988, Ref. ID. 6				
PCB	BURIAL/PONDED	2700	ppb		
Comments:	Kaiser NPDES application to WDOE shows a reading of 2700 ppb of Aroclor 1254 in the sediment of their 001 pond.				
Reference:	Hicks, John (Am Test), 2/9/89, Ref. ID. 9				
PCB	SOIL			2900	gallons
Comments:	A transformer fluid pipeline broke in the transformer yard. Approximately 2,900 gallons of transformer oil leaded into the soil. Some of the oil contained Aroclor 1260 (<50 ppm). According to Kaiser's legal counsel, there were subsequent investigations and "there is no evidence that PCB's from the spill reached Commencement Bay waterway's".				
Reference:	Beveridge, R. Paul, 5/26/89, Ref. ID. 50				
PCB	SOIL				
Comments:	Describes presence of PCB's in Kaiser Ditch during Remedial Investigation.				
Reference:	Tetra Tech, Inc, 1985, Ref. ID. 7				

LEVY, ROBERT E.

Segment: 4 **Map Reference #:** 80

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units
BBPH	FOOTPRINT				
Comments:	Butylbenzyl phthalate footprint adjacent to site, BBPH15				
Reference:	Allocation Team, NA, Ref. ID. 261				
DMPH	FOOTPRINT				
Comments:	Dimethyl phthalate footprint adjacent to site, DMPH11				
Reference:	Allocation Team, NA, Ref. ID. 261				
DOPH	FOOTPRINT				
Comments:	Di-n-octyl phthalate footprint adjacent to site, DOPH13				
Reference:	Allocation Team, NA, Ref. ID. 261				

LONE STAR NORTHWEST

Segment: 1 **Map Reference #:** 11

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units
PAH	SOIL				
Comments:	Although concentrations were not reported, a known leak was present, which contaminated the soil surrounding a UST.				
Reference:	Owens, Ed (LP), 6/20/90, Ref. ID. 21				
PAH	SOIL				
Comments:	During a WDOE inspection, the diesel fuel area was observed to be uncovered. A drip tray, which did not have the drain plugs inserted to prevent leaking of diesel directly to ground, was observed.				
Reference:	State of Washington Department of Ecology, 6/17/92, Ref. ID. 23				
TBT	FOOTPRINT				
Comments:	Tributyltin footprint adjacent to site, TBT1				
Reference:	Allocation Team, NA, Ref. ID. 261				

LOUISIANA PACIFIC

Segment: 1 **Map Reference #:** 12

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units
AS	SOIL	5	mg/kg		
Comments:	Table 8 provides concentrations of total metals from soil samples collected from boring LP-3 at a depth of 1.0 to 2.5 feet. As conc. = 5 mg/kg dry weight basis.				
Reference:	CH2MHILL, March 1989, Ref. ID. 29				
BBPH	FOOTPRINT				
Comments:	Butylbenzyl phthalate footprint adjacent to site, BBPH2				
Reference:	Allocation Team, NA, Ref. ID. 261				
CU	SOIL	11	mg/kg		
Comments:	Table 8 provides concentrations of total metals from soil samples collected from boring LP-3 at a depth of 1.0 to 2.5 feet. Cu conc. = 11 mg/kg dry weight basis.				
Reference:	CH2MHILL, March 1989, Ref. ID. 29				
PAH	SOIL	4300	mg/kg		
Comments:	Upon excavation, soil sample taken from tank 1 sidewall and analyzed by WTPH-G reported 4300 mg/kg.				
Reference:	ATEC Associates, Inc, 5/29/92, Ref. ID. 30				

PAH	SOIL	3850	mg/kg
Comments:	Upon excavation, soil sample taken from tank 2 bottom and analyzed by WTPH-D reported 3850 mg/kg.		
Reference:	ATEC Associates, Inc, 5/29/92, Ref. ID. 30		
PB	SOIL	8	mg/kg
Comments:	Table 8 provides concentrations of total metals from soil samples collected from boring LP-3 at a depth of 1.0 to 2.5 feet. Pb conc. = 8 mg/kg dry weight basis.		
Reference:	CH2MHILL, March 1989, Ref. ID. 29		
ZN	SOIL	31	mg/kg
Comments:	Table 8 provides concentrations of total metals from soil samples collected from boring LP-3 at a depth of 1.0 to 2.5 feet. Zn conc. = 31 mg/kg dry weight basis.		
Reference:	CH2MHILL, March 1989, Ref. ID. 29		

MANKE LUMBER

Segment: 1 **Map Reference #:** 6

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units
AS	FOOTPRINT				
Comments:	Arsenic footprint adjacent to site, AS2				
Reference:	Allocation Team, NA, Ref. ID. 261				
BEPH	FOOTPRINT				
Comments:	Bis (2-ethylhexyl) phthalate footprint adjacent to site, BEPH2				
Reference:	Allocation Team, NA, Ref. ID. 261				
DMPH	FOOTPRINT				
Comments:	Dimethyl phthalate footprint adjacent to site, DMPH3				
Reference:	Allocation Team, NA, Ref. ID. 261				
HCBD	FOOTPRINT				
Comments:	Hexachlorobutadiene footprint adjacent to site, HCBD4				
Reference:	Allocation Team, NA, Ref. ID. 261				
MDCB	FOOTPRINT				
Comments:	1,3-dichlorobenzene footprint adjacent to site, MDCB2				
Reference:	Allocation Team, NA, Ref. ID. 261				
PAH	SOIL	107-255	mg/kg		
Comments:	Samples taken from the stockpiled/contaminated soil were analyzed and found to contain between 107 mg/kg and 255 mk/kg diesel range hydrocarbons. A groundwater sample contained 2.71 mg/l heavy oil. [It is presumed that this contamination is not associated with leakage from the removed diesel UST].				
Reference:	Emcon Northwest, Inc, 3/11/92, Ref. ID. 54				
PCP	SOIL	6.2	ppm		
Comments:	In November 1989, four subsurface soil samples were taken in the area of the dip tank and pentachlorophenol was found at concentrations ranging from 0.32 to 6.2 ppm.				
Reference:	Manke, James D, April 1993, Ref. ID. 52				
SB	FOOTPRINT				
Comments:	Antimony footprint adjacent to site, SB3				
Reference:	Allocation Team, NA, Ref. ID. 261				

SB	FOOTPRINT					
Comments:	Antimony footprint adjacent to site, SB2					
Reference:	Allocation Team, NA, Ref. ID. 261					
TBT	FOOTPRINT					
Comments:	Tributyltin footprint adjacent to site, TBT1					
Reference:	Allocation Team, NA, Ref. ID. 261					

MARINE VIEW DR #1 **Segment:** 5 **Map Reference #:** 54

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units
HCB	FOOTPRINT				
Comments:	Hexachlorobenzene footprint adjacent to site, HCB6				
Reference:	Allocation Team, NA, Ref. ID. 261				
HCBD	FOOTPRINT				
Comments:	Hexachlorobutadiene footprint adjacent to site, HCBD13				
Reference:	Allocation Team, NA, Ref. ID. 261				
TBT	FOOTPRINT				
Comments:	Tributyltin footprint adjacent to site, TBT9				
Reference:	Allocation Team, NA, Ref. ID. 261				

MODUTECH MARINE **Segment:** 3 **Map Reference #:** 24

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units
AS	SOIL	46	ug/g		
Comments:	Samples taken from various locations around the site including the sandblasting sheds, tidally influenced crane way, and the northwest corner of the property showed Arsenic concentrations in the soil.				
Reference:	Gooding, Lynn, 4/16/91, Ref. ID. 96				
BBPH	FOOTPRINT				
Comments:	Butylbenzyl phthalate footprint adjacent to site, BBPH8				
Reference:	Allocation Team, NA, Ref. ID. 261				
BBPH	SOIL	5,100	ug/kg		
Comments:	Samples taken from various locations around the site including the sandblasting sheds, tidally influenced crane way, and the northwest corner of the property showed BBPH concentrations in the soil.				
Reference:	Gooding, Lynn, 4/16/91, Ref. ID. 96				
BEPH	FOOTPRINT				
Comments:	Bis (2-ethylhexyl) phthalate footprint adjacent to site, BEPH7				
Reference:	Allocation Team, NA, Ref. ID. 261				
BEPH	SOIL	20,000	ug/kg		
Comments:	Samples taken from various locations around the site including the sandblasting sheds, tidally influenced crane way, and the northwest corner of the property showed BEPH concentrations in the soil.				
Reference:	Gooding, Lynn, 4/16/91, Ref. ID. 96				

CD	SOIL	24	ug/g
Comments:	Samples taken from various locations around the site including the sandblasting sheds, tidally influenced crane way, and the northwest corner of the property showed Cadmium concentrations in the soil.		
Reference:	Gooding, Lynn, 4/16/91, Ref. ID. 96		
CR	SOIL	128	ug/g
Comments:	Samples taken from various locations around the site including the sandblasting sheds, tidally influenced crane way, and the northwest corner of the property showed Chromium concentrations in the soil.		
Reference:	Gooding, Lynn, 4/16/91, Ref. ID. 96		
CU	FOOTPRINT		
Comments:	Copper footprint adjacent to site, CU4		
Reference:	Allocation Team, NA, Ref. ID. 261		
CU	SEDIMENT	23,000	ug/g
Comments:	Samples taken from the tidally influenced crane way showed Copper concentrations in the sediment.		
Reference:	Gooding, Lynn, 4/16/91, Ref. ID. 96		
CU	SOIL	2,800	ppm
Comments:	A sample collected outside sheds used for sandblasting appeared to be mostly sandblast grit was found to contain CU concentrations of 2,800 ppm.		
Reference:	Gooding, Lynn, 4/16/91, Ref. ID. 96		
DMPH	FOOTPRINT		
Comments:	Dimethyl phthalate footprint adjacent to site, DMPH9		
Reference:	Allocation Team, NA, Ref. ID. 261		
DMPH	SOIL	67,000	ug/kg
Comments:	Samples taken from various locations around the site including the sandblasting sheds, tidally influenced crane way, and the northwest corner of the property showed DMPH concentrations in the soil.		
Reference:	Gooding, Lynn, 4/16/91, Ref. ID. 96		
DOPH	SOIL	1,100	ug/kg
Comments:	Samples taken from various locations around the site including the sandblasting sheds, tidally influenced crane way, and the northwest corner of the property showed DOPH concentrations in the soil.		
Reference:	Gooding, Lynn, 4/16/91, Ref. ID. 96		
HCBD	FOOTPRINT		
Comments:	Hexachlorobutadiene footprint adjacent to site, HCBD6		
Reference:	Allocation Team, NA, Ref. ID. 261		
HG	SOIL	1.80	ug/g
Comments:	Samples taken from various locations around the site including the sandblasting sheds, tidally influenced crane way, and the northwest corner of the property showed Mercury concentrations in the soil.		
Reference:	Mercuri, Joyce, 7/12/94, Ref. ID. 95		
MDCB	FOOTPRINT		
Comments:	1,3-dichlorobenzene footprint adjacent to site, MDCB11		
Reference:	Allocation Team, NA, Ref. ID. 261		

NI	SOIL	69	ug/g

Comments: Samples taken from various locations around the site including the sandblasting sheds, tidally influenced crane way, and the northwest corner of the property showed Nickel concentrations in the soil.

Reference: Gooding, Lynn, 4/16/91, Ref. ID. 96

PAH	SOIL	36,200	ug/kg

Comments: Samples taken from various locations around the site including the sandblasting sheds, tidally influenced crane way, and the northwest corner of the property showed Total Carcinogenic PAH concentrations in the soil.

Reference: Gooding, Lynn, 4/16/91, Ref. ID. 96

PB	SOIL	450	ug/g

Comments: Samples taken from various locations around the site including the sandblasting sheds, tidally influenced crane way, and the northwest corner of the property showed Lead concentrations in the soil.

Reference: Gooding, Lynn, 4/16/91, Ref. ID. 96

PCB	SOIL	9,200	ug/kg

Comments: Samples taken from various locations around the site including the sandblasting sheds, tidally influenced crane way, and the northwest corner of the property showed PCB concentrations in the soil (total of aroclors 1254 and 1262).

Reference: Gooding, Lynn, 4/16/91, Ref. ID. 96

SB FOOTPRINT

Comments: Antimony footprint adjacent to site, SB6

Reference: Allocation Team, NA, Ref. ID. 261

SB	SOIL	12.6	ug/g

Comments: Samples taken from various locations around the site including the sandblasting sheds, tidally influenced crane way, and the northwest corner of the property showed Antimony concentrations in the soil.

Reference: Gooding, Lynn, 4/16/91, Ref. ID. 96

TBT SOIL

Comments: Measured as total tin, not as TBT

Reference: Gooding, Lynn, 4/16/91, Ref. ID. 96

ZN	SOIL	7,080	ug/g

Comments: Samples taken from various locations around the site including the sandblasting sheds, tidally influenced crane way, and the northwest corner of the property showed Zinc concentrations in the soil.

Reference: Gooding, Lynn, 4/16/91, Ref. ID. 96

MURRAY PACIFIC

Segment: 3 **Map Reference #:** 29

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units

AS FOOTPRINT

Comments: Arsenic footprint adjacent to site, AS10

Reference: Allocation Team, NA, Ref. ID. 261

AS SOIL

Comments: The ASARCO slag used as ballast on the site was found to leach Arsenic into the soil and stormwater.

Reference: Shenk, Jr., Clair A, 3/23/93, Ref. ID. 87

AS	SOIL
Comments:	Total Arsenic concentrations detected in surface soil samples ranged from 180 to 1300 ppm.
Reference:	Kennedy/Jenks/Chilton, Applied Geotechnology Inc, 8/1/87, Ref. ID. 289
AS	SURFACE WATER
Comments:	Total Arsenic concentrations detected in surface water grab samples taken from the Murray Pacific Log sort yard#1 ranged from 10,000 to 30,000 ppb.
Reference:	Kennedy/Jenks/Chilton, Applied Geotechnology Inc, 8/1/87, Ref. ID. 289
BBPH	FOOTPRINT
Comments:	Butylbenzyl phthalate footprint adjacent to site, BBPH9
Reference:	Allocation Team, NA, Ref. ID. 261
CR	FOOTPRINT
Comments:	Chromium footprint adjacent to site, CR4
Reference:	Allocation Team, NA, Ref. ID. 261
CR	SOIL
Comments:	
Reference:	Neumiller, Christine, 10/7/92, Ref. ID. 88
CU	FOOTPRINT
Comments:	Copper footprint adjacent to site, CU5
Reference:	Allocation Team, NA, Ref. ID. 261
CU	SOIL
Comments:	The ASARCO slag used as ballast on the site was found to leach Copper into the soil and stormwater.
Reference:	Shenk, Jr., Clair A, 3/23/93, Ref. ID. 87
HCBD	FOOTPRINT
Comments:	Hexachlorobutadiene footprint adjacent to site, HCBD6
Reference:	Allocation Team, NA, Ref. ID. 261
MDCB	FOOTPRINT
Comments:	1,3-dichlorobenzene footprint adjacent to site, MDCB10
Reference:	Allocation Team, NA, Ref. ID. 261
PAH	SOIL
Comments:	
Reference:	Shenk, Chuck, 7/19/93, Ref. ID. 85
PB	SOIL
Comments:	The ASARCO slag used as ballast on the site was found to leach Lead into the soil and stormwater.
Reference:	Shenk, Jr., Clair A, 3/23/93, Ref. ID. 87
SB	FOOTPRINT
Comments:	Antimony footprint adjacent to site, SB4
Reference:	Allocation Team, NA, Ref. ID. 261
ZN	FOOTPRINT
Comments:	Zinc footprint adjacent to site, ZN9
Reference:	Allocation Team, NA, Ref. ID. 261

ZN SOIL

Comments:

Reference: Shenk, Jr., Clair A, 3/23/93, Ref. ID. 87

NORDLUND PROPERTIES

Segment: 1 **Map Reference #:** 2

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units

AS SOIL

Comments: Report indicates a range of 50-120 ug/g of arsenic found in soil.

Reference: Errol Nelson P.E. QEP, Optimum Environment, December 1996, Ref. ID. 38

CU SOIL

Comments: Report indicates a range of 67-120 ug/g of copper found in soil.

Reference: Errol Nelson P.E. QEP, Optimum Environment, December 1996, Ref. ID. 38

DMPH FOOTPRINT

Comments: Dimethyl phthalate footprint adjacent to site, DMPH2

Reference: Allocation Team, NA, Ref. ID. 261

DOPH FOOTPRINT

Comments: Di-n-octyl phthalate footprint adjacent to site, DOPH3

Reference: Allocation Team, NA, Ref. ID. 261

NI SOIL

Comments: Report indicates a range of 24-26 ug/g of nickel found in soil.

Reference: Errol Nelson P.E. QEP, Optimum Environment, December 1996, Ref. ID. 38

PAH GROUND WATER

Comments: Diesel range petroleum hydrocarbons detected during the excavation of one of the diesel UST's.

Reference: Neuston, 2/21/98, Ref. ID. 39

PAH SOIL

Comments: On 11/14/97 diesel-range petroleum hydrocarbons were detected in the UST stockpiled soils and in the excavation pit. Approximately 100 tons of petroleum impacted soil was removed and transported off-site.

Reference: Neuston, 2/21/98, Ref. ID. 39

PB SOIL

Comments: Report indicates a range of 480-200 ug/g of lead found in soil.

Reference: Errol Nelson P.E. QEP, Optimum Environment, December 1996, Ref. ID. 38

ZN SOIL

Comments: Report indicates a range of 280-780 ug/g of zinc found in soil.

Reference: Errol Nelson P.E. QEP, Optimum Environment, December 1996, Ref. ID. 38

OCCIDENTAL

Segment: 5 **Map Reference #:** 57

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units

AS FOOTPRINT

Comments: Arsenic footprint adjacent to site, AS15

Reference: Allocation Team, NA, Ref. ID. 261

AS	FOOTPRINT		
Comments:	Arsenic footprint adjacent to site, AS14		
Reference:	Allocation Team, NA, Ref. ID. 261		
BEPH	FOOTPRINT		
Comments:	Bis (2-ethylhexyl) phthalate footprint adjacent to site, BEPH9		
Reference:	Allocation Team, NA, Ref. ID. 261		
BEPH	FOOTPRINT		
Comments:	Bis (2-ethylhexyl) phthalate footprint adjacent to site, BEPH10		
Reference:	Allocation Team, NA, Ref. ID. 261		
BEPH	SOIL		
Comments:	Site investigation detected bis-(2-ethylhexyl)-phthalate.		
Reference:	Hart Crowser, 6/14/94, Ref. ID. 149		
CR	FOOTPRINT		
Comments:	Chromium footprint adjacent to site, CR9		
Reference:	Allocation Team, NA, Ref. ID. 261		
CR	FOOTPRINT		
Comments:	Chromium footprint adjacent to site, CR8		
Reference:	Allocation Team, NA, Ref. ID. 261		
CR	PLANT EFFLUENT	16	lbs/day
Comments:	Inspection estimated loading amount of Chromium to the waterway from the plants effluent to be 16 lbs/day.		
Reference:	Yake, Bill, 6/4/80, Ref. ID. 275		
CU	FOOTPRINT		
Comments:	Copper footprint adjacent to site, CU9		
Reference:	Allocation Team, NA, Ref. ID. 261		
CU	FOOTPRINT		
Comments:	Copper footprint adjacent to site, CU10		
Reference:	Allocation Team, NA, Ref. ID. 261		
CU	FOOTPRINT		
Comments:	Copper footprint adjacent to site, CU11		
Reference:	Allocation Team, NA, Ref. ID. 261		
DDD	FOOTPRINT		
Comments:	P,p'-ddd footprint adjacent to site, DDD7		
Reference:	Allocation Team, NA, Ref. ID. 261		
DDD	SOIL		
Comments:	DDD found in upland boreholes.		
Reference:	Occidental Chemical Corp, 9/13/96, Ref. ID. 276		

DDE FOOTPRINT

Comments: P,p'-dde footprint adjacent to site, DDE9

Reference: Allocation Team, NA, Ref. ID. 261

DDE SOIL

Comments: DDE found in upland boreholes.

Reference: Occidental Chemical Corp, 9/13/96, Ref. ID. 276

DDT FOOTPRINT

Comments: P,p'-ddt footprint adjacent to site, DDT3

Reference: Allocation Team, NA, Ref. ID. 261

DDT SOIL

Comments: DDT found in upland boreholes.

Reference: Occidental Chemical Corp, 9/13/96, Ref. ID. 276

DMPH FOOTPRINT

Comments: Dimethyl phthalate footprint adjacent to site, DMPH12

Reference: Allocation Team, NA, Ref. ID. 261

DOPH FOOTPRINT

Comments: Di-n-octyl phthalate footprint adjacent to site, DOPH14

Reference: Allocation Team, NA, Ref. ID. 261

HCB FOOTPRINT

Comments: Hexachlorobenzene footprint adjacent to site, HCB6

Reference: Allocation Team, NA, Ref. ID. 261

HCB PLANT EFFLUENT

Comments: Ecology directly analyzed stripper effluent and found HCB.

Reference: Tetra Tech, Inc, 1985, Ref. ID. 7

HCBD FOOTPRINT

Comments: Hexachlorobutadiene footprint adjacent to site, HCBD13

Reference: Allocation Team, NA, Ref. ID. 261

HCBD PLANT EFFLUENT

Comments: Ecology directly analyzed stripper effluent and found HCBD.

Reference: Tetra Tech, Inc, 1985, Ref. ID. 7

HG FOOTPRINT

Comments: Mercury footprint adjacent to site, HG17

Reference: Allocation Team, NA, Ref. ID. 261

HG FOOTPRINT

Comments: Mercury footprint adjacent to site, HG16

Reference: Allocation Team, NA, Ref. ID. 261

HG	PLANT EFFLUENT		
Comments:	Effluent from HY-085 contained mercury		
Reference:	Tetra Tech, Inc, 1985, Ref. ID. 7		
MDCB	FOOTPRINT		
Comments:	1,3-dichlorobenzene footprint adjacent to site, MDCB15		
Reference:	Allocation Team, NA, Ref. ID. 261		
MDCB	PLANT EFFLUENT		
Comments:	Effluent from HY-085 contained MDCB		
Reference:	Tetra Tech, Inc, 1985, Ref. ID. 7		
NI	FOOTPRINT		
Comments:	Nickel footprint adjacent to site, NI2		
Reference:	Allocation Team, NA, Ref. ID. 261		
NI	FOOTPRINT		
Comments:	Nickel footprint adjacent to site, NI4		
Reference:	Allocation Team, NA, Ref. ID. 261		
NI	FOOTPRINT		
Comments:	Nickel footprint adjacent to site, NI3		
Reference:	Allocation Team, NA, Ref. ID. 261		
NI	PLANT EFFLUENT	29 to 32	lbs/day
Comments:	A class II inspection performed in 1979 analyzed the process saltwater influent and the total effluent in order to estmate the net loadings for various metals. Nickel loading was estimated at 29 to 32 lbs/day.		
Reference:	Yake, Bill, 6/4/80, Ref. ID. 275		
PAH	PLANT EFFLUENT		
Comments:	Known hydrocarbon product releases from accidents were sent out the plant's effluent discharge.		
Reference:	Abercrombie, Will, 2/22/84, Ref. ID. 144		
PB	FOOTPRINT		
Comments:	Lead footprint adjacent to site, PB8		
Reference:	Allocation Team, NA, Ref. ID. 261		
PB	FOOTPRINT		
Comments:	Lead footprint adjacent to site, PB9		
Reference:	Allocation Team, NA, Ref. ID. 261		
PB	FOOTPRINT		
Comments:	Lead footprint adjacent to site, PB7		
Reference:	Allocation Team, NA, Ref. ID. 261		
PB	PLANT EFFLUENT		
Comments:	Plant produced 3 tons of brine sludge a day (dry basis) which had 0.2% lead.		
Reference:	Region 10 S&A Inspection Team, 7/3/79, Ref. ID. 174		

PCB	GROUND WATER	1800 (J)	ppb
Comments:	A sediment sample taken from a seep on the Occidental site (below the old solvent plant) revealed the hightest concentration of PCB's detected in intertidal sediments during this study.		
Reference:	Stinson, Margaret et al., State of Washington Department of Ecology, 3/1/87, Ref. ID. 282		
PCB	SOIL		
Comments:	Samples taken from upland boreholes during the bank characterization study revealed PCB contamination in numerous samples. Of the upland borehole samples where PCB's were detected, some of the higher concentrations levels were reported at 10,000 ppb (Aroclor 1254) and 11,000 ppb (Aroclor 1260). Some of the samples taken from the bank were reported at concentration levels of 14,000 ppb (Aroclor 1254) and 6,200 ppb (Aroclor 1260).		
Reference:	Occidental Chemical Corp, 9/13/96, Ref. ID. 276		
PCB	SOIL		
Comments:	A soil sample taken from "an oil-stained soil area" on the PRI property, was analyzed and found to contain PCB's (Aroclor 1260 = 10.90 ppm, Aroclor 1254 = 13.4 ppm).		
Reference:	State of Washington Department of Ecology, September 1995, Ref. ID. 153		
PCB	SOIL		
Comments:	PCB contaminated soil found in middle of PRI portion of site.		
Reference:	Ecology and Environment, Inc, May 1990, Ref. ID. 150		
PCP	FOOTPRINT		
Comments:	Pentachlorophenol footprint adjacent to site, PCP1		
Reference:	Allocation Team, NA, Ref. ID. 261		
PDCB	FOOTPRINT		
Comments:	1,4-dichlorobenzene footprint adjacent to site, PDCB1		
Reference:	Allocation Team, NA, Ref. ID. 261		
SB	FOOTPRINT		
Comments:	Antimony footprint adjacent to site, SB12		
Reference:	Allocation Team, NA, Ref. ID. 261		
SB	FOOTPRINT		
Comments:	Antimony footprint adjacent to site, SB11		
Reference:	Allocation Team, NA, Ref. ID. 261		
SB	SOIL	130	ppm
Comments:	A 1996 study analyzed various portions of the site bank area. Antimony was detected in a sample (described as slag) at 130 ppm in the Northern portion of the bank.		
Reference:	Occidental Chemical Corp, 9/13/96, Ref. ID. 276		
TBT	FOOTPRINT		
Comments:	Tributyltin footprint adjacent to site, TBT8		
Reference:	Allocation Team, NA, Ref. ID. 261		
TCB	FOOTPRINT		
Comments:	Trichlorobenzene footprint adjacent to site, TCB5		
Reference:	Allocation Team, NA, Ref. ID. 261		
TCB	SOIL		
Comments:	Site investigation detected 1,2,4-trichlorobenzene.		
Reference:	Hart Crowser, 6/14/94, Ref. ID. 149		

TCB	UNKNOWN					
Comments:	Trichlorobenzene was not directly named as being found in effluent or other site samples; [however, as an incomplete chlorination of benzene (full chlorination being HCB) it is more likely than not present in the discharge.]					
Reference:	Tetra Tech, Inc, 1985, Ref. ID. 7					
ZN	FOOTPRINT					
Comments:	Zinc footprint adjacent to site, ZN13					
Reference:	Allocation Team, NA, Ref. ID. 261					
ZN	FOOTPRINT					
Comments:	Zinc footprint adjacent to site, ZN15					
Reference:	Allocation Team, NA, Ref. ID. 261					
ZN	FOOTPRINT					
Comments:	Zinc footprint adjacent to site, ZN14					
Reference:	Allocation Team, NA, Ref. ID. 261					

OLE & CHARLIE'S MARINA

Segment: 5 **Map Reference #:** 55

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units
CD	SEDIMENT	9.38	mg/kg		
Comments:	9.38 mg/kg detected in catch basin sediment				
Reference:	Coleman, Marv, 11/17/94, Ref. ID. 180				
CU	SEDIMENT	748	mg/kg		
Comments:	748 mg/kg detected in catch basin sediment				
Reference:	Coleman, Marv, 11/17/94, Ref. ID. 180				
PAH	SEDIMENT	270	mg/kg		
Comments:	270 mg/kg detected in catch basin sediment				
Reference:	Herold, Mike, 1/6/92, Ref. ID. 179				
PCB	SEDIMENT	0.63	mg/kg		
Comments:	Catch basin sediment detected 0.63 mg/kg				
Reference:	Herold, Mike, 1/6/92, Ref. ID. 179				
TBT	FOOTPRINT				
Comments:	Tributyltin footprint adjacent to site, TBT9				
Reference:	Allocation Team, NA, Ref. ID. 261				
ZN	SEDIMENT	2850	mg/kg		
Comments:	2850 mg/kg found in catch basin sediment				
Reference:	Coleman, Marv, 11/17/94, Ref. ID. 180				

OLINE PROPERTIES (1800 MARINE VIEW DR)

Segment: 2 **Map Reference #:** 17

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units
BBPH	FOOTPRINT				
Comments:	Butylbenzyl phthalate footprint adjacent to site, BBPH8				
Reference:	Allocation Team, NA, Ref. ID. 261				

DDE	FOOTPRINT					
Comments:	P,p'-dde footprint adjacent to site, DDE7					
Reference:	Allocation Team, NA, Ref. ID. 261					
DMPH	FOOTPRINT					
Comments:	Dimethyl phthalate footprint adjacent to site, DMPH7					
Reference:	Allocation Team, NA, Ref. ID. 261					
DOPH	FOOTPRINT					
Comments:	Di-n-octyl phthalate footprint adjacent to site, DOPH7					
Reference:	Allocation Team, NA, Ref. ID. 261					
HCBD	FOOTPRINT					
Comments:	Hexachlorobutadiene footprint adjacent to site, HCBD6					
Reference:	Allocation Team, NA, Ref. ID. 261					
HG	FOOTPRINT					
Comments:	Mercury footprint adjacent to site, HG9					
Reference:	Allocation Team, NA, Ref. ID. 261					
MDCB	FOOTPRINT					
Comments:	1,3-dichlorobenzene footprint adjacent to site, MDCB9					
Reference:	Allocation Team, NA, Ref. ID. 261					
SB	FOOTPRINT					
Comments:	Antimony footprint adjacent to site, SB3					
Reference:	Allocation Team, NA, Ref. ID. 261					
TBT	FOOTPRINT					
Comments:	Tributyltin footprint adjacent to site, TBT4					
Reference:	Allocation Team, NA, Ref. ID. 261					

PETROLEUM RECLAIMING SERVICES

Segment: 2 **Map Reference #:** 21

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units
AS	SOIL				
Comments:	Shallow soil samples taken from bordering ditches that drain to the waterway were sampled and revealed arsenic.				
Reference:	Smith, Dave, 10/4/93, Ref. ID. 74				
BEPH	SOIL	2,800	ppb		
Comments:	A soil sample taken from the site revealed BEPH.				
Reference:	Hart Crowser, 2/19/86, Ref. ID. 75				
CU	SOIL				
Comments:	Shallow soil samples taken from bordering ditches that drain to the waterway were sampled and revealed copper.				
Reference:	Smith, Dave, 10/4/93, Ref. ID. 74				
DDT	SOIL	170	ppb		
Comments:	A soil sample taken from the site revealed DDT.				
Reference:	Hart Crowser, 2/19/86, Ref. ID. 75				

DOPH	SOIL	150	ppb	
Comments:	A soil sample taken from the site revealed DOPH.			
Reference:	Hart Crowser, 2/19/86, Ref. ID. 75			
HG	SOIL			
Comments:	Shallow soil samples taken from bordering ditches that drain to the waterway were sampled and revealed mercury.			
Reference:	Smith, Dave, 10/4/93, Ref. ID. 74			
NI	SOIL			
Comments:	Shallow soil samples taken from bordering ditches that drain to the waterway were sampled and revealed nickel.			
Reference:	Smith, Dave, 10/4/93, Ref. ID. 74			
PAH	SOIL			
Comments:	Shallow soil samples taken from bordering ditches that drain to the waterway were sampled and revealed HPAH.			
Reference:	Smith, Dave, 10/4/93, Ref. ID. 74			
PB	SOIL			
Comments:	Shallow soil samples taken from bordering ditches that drain to the waterway were sampled and revealed lead.			
Reference:	Smith, Dave, 10/4/93, Ref. ID. 74			
PCB	SOIL	2,400	ppb	
Comments:	A soil sample taken from the site revealed Aroclor 1260.			
Reference:	Hart Crowser, 2/19/86, Ref. ID. 75			
PCB	SOIL			
Comments:	The reference describes PCB contamination of soils beneath and adjacent to an existing petroleum storage tank farm.			
Reference:	Petroleum Reclaiming Service, 3/24/97, Ref. ID. 251			
PCP	SOIL	98	ppb	
Comments:	A soil sample taken from the site revealed PCP.			
Reference:	Hart Crowser, 2/19/86, Ref. ID. 75			
ZN	SOIL			
Comments:	Shallow soil samples taken from bordering ditches that drain to the waterway were sampled and revealed zinc.			
Reference:	Smith, Dave, 10/4/93, Ref. ID. 74			

PORT OF TACOMA (3002 TAYLOR WAY)

Segment: 1 **Map Reference #:** 13

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units	
AS	SOIL					
Comments:	Arsenic levels detected in the soil ranged from 140 mg/kg to 660 mg/kg.					
Reference:	U.S. Environmental Protection Agency, 3/9/93, Ref. ID. 259					
CR	SOIL					
Comments:	Slag from the Ohio Ferro Alloy smelter was found on site and known to have been contaminated with Chromium.					
Reference:	U.S. Environmental Protection Agency, 3/9/93, Ref. ID. 259					
PAH	SOIL					
Comments:	Carcinogenic PAH concentrations from soil samples near the charcoal briquettes ranged from 68 mg/kg to 2,980 mg/kg.					
Reference:	U.S. Environmental Protection Agency, 3/9/93, Ref. ID. 259					

PAH SOIL

Comments: The charcoal deposited on the site contaminated the surrounding soil with PAHs. Approximately 4,100 cubic yards of contaminated soil was expected to be excavated.

Reference: Hart Crowser, 1/21/94, Ref. ID. 258

PORT OF TACOMA (9533 E. 11TH ST)

Segment: 5 **Map Reference #:** 60

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units

AG FOOTPRINT

Comments: Silver footprint adjacent to site, AG3

Reference: Allocation Team, NA, Ref. ID. 261

PB FOOTPRINT

Comments: Lead footprint adjacent to site, PB6

Reference: Allocation Team, NA, Ref. ID. 261

SB FOOTPRINT

Comments: Antimony footprint adjacent to site, SB10

Reference: Allocation Team, NA, Ref. ID. 261

SOUND REFINING

Segment: 4 **Map Reference #:** 41

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units

AG FOOTPRINT

Comments: Silver footprint adjacent to site, AG2

Reference: Allocation Team, NA, Ref. ID. 261

AG PLANT EFFLUENT

Comments: Silver detected in effluent at 1.0 ug/L

Reference: State of Washington Department of Ecology, 7/1/95, Ref. ID. 183

AS FOOTPRINT

Comments: Arsenic footprint adjacent to site, AS11

Reference: Allocation Team, NA, Ref. ID. 261

AS FOOTPRINT

Comments: Arsenic footprint adjacent to site, AS13

Reference: Allocation Team, NA, Ref. ID. 261

AS GROUND WATER

Comments: Ground water samples taken from various locations throughout the site were analyzed and found to contain between 0.011 and 0.032 mg/L of arsenic

Reference: Hart Crowser, 11/29/88, Ref. ID. 324

AS PLANT EFFLUENT

Comments: Arsenic detected in effluent at 6.9 ug/L

Reference: State of Washington Department of Ecology, 7/1/95, Ref. ID. 183

BBPH FOOTPRINT

Comments: Butylbenzyl phthalate footprint adjacent to site, BBPH12

Reference: Allocation Team, NA, Ref. ID. 261

CD	FOOTPRINT		
Comments:	Cadmium footprint adjacent to site, CD4		
Reference:	Allocation Team, NA, Ref. ID. 261		
CD	PLANT EFFLUENT		
Comments:	Detected in plant effluent.		
Reference:	State of Washington Department of Ecology, 7/1/95, Ref. ID. 183		
CR	PLANT EFFLUENT		
Comments:	Chromium detected in effluent at 7.2 ug/L		
Reference:	State of Washington Department of Ecology, 7/1/95, Ref. ID. 183		
CU	FOOTPRINT		
Comments:	Copper footprint adjacent to site, CU7		
Reference:	Allocation Team, NA, Ref. ID. 261		
CU	PLANT EFFLUENT		
Comments:	Copper detected in effluent at 18 ug/L		
Reference:	State of Washington Department of Ecology, 7/1/95, Ref. ID. 183		
HCBD	FOOTPRINT		
Comments:	Hexachlorobutadiene footprint adjacent to site, HCBD10		
Reference:	Allocation Team, NA, Ref. ID. 261		
HG	PLANT EFFLUENT		
Comments:	Mercury detected in effluent at 1.91 ug/L		
Reference:	State of Washington Department of Ecology, 7/1/95, Ref. ID. 183		
NI	PLANT EFFLUENT		
Comments:	Detected in plant effluent.		
Reference:	State of Washington Department of Ecology, 7/1/95, Ref. ID. 183		
PAH	PLANT EFFLUENT		
Comments:	Sound Refining exceeded the maximum daily concentration for oil and grease 93 times between 11/81 and 09/83.		
Reference:	Burd, Robert S, 9/29/83, Ref. ID. 182		
PAH	PLANT EFFLUENT		
Comments:	Sound Refining violated it's permit for oil and grease 188 times between 10/77 and 01/79.		
Reference:	Rock, Chet, 3/2/79, Ref. ID. 181		
PAH	SOIL	3,000	mg/kg
Comments:	A soil sample taken between 7.5 and 9 feet bgs(below ground surface) was analyzed for petroleum hydrocarbons and found to contain 3,000 mg/kg.		
Reference:	Hart Crowser, 11/29/88, Ref. ID. 324		
PB	FOOTPRINT		
Comments:	Lead footprint adjacent to site, PB4		
Reference:	Allocation Team, NA, Ref. ID. 261		

PB PLANT EFFLUENT

Comments: Lead detected in effluent at 2.4 ug/L

Reference: State of Washington Department of Ecology, 7/1/95, Ref. ID. 183

PCP PLANT EFFLUENT

Comments: Detected in plant effluent at 63 ppb.

Reference: Norton, Dale (State of Washington Department of Ecology), 1/17/83, Ref. ID. 277

SB FOOTPRINT

Comments: Antimony footprint adjacent to site, SB7

Reference: Allocation Team, NA, Ref. ID. 261

SB FOOTPRINT

Comments: Antimony footprint adjacent to site, SB8

Reference: Allocation Team, NA, Ref. ID. 261

TBT FOOTPRINT

Comments: Tributyltin footprint adjacent to site, TBT6

Reference: Allocation Team, NA, Ref. ID. 261

ZN FOOTPRINT

Comments: Zinc footprint adjacent to site, ZN11

Reference: Allocation Team, NA, Ref. ID. 261

ZN PLANT EFFLUENT

Comments: Zinc detected in effluent at 89.8 ug/L

Reference: State of Washington Department of Ecology, 7/1/95, Ref. ID. 183

SPECIALTY MACHINE SHOP

Segment: 5 **Map Reference #:** 52

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units	

PAH SOIL

Comments: Oil stains observed on the site grounds.

Reference: State of Washington Department of Ecology, 10/17/89, Ref. ID. 268

STONE INVESTMENTS

Segment: 3 **Map Reference #:** 25

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units	

MDCB FOOTPRINT

Comments: 1,3-dichlorobenzene footprint adjacent to site, MDCB12

Reference: Allocation Team, NA, Ref. ID. 261

PAH SOIL

Comments: The reference states that "Oil stains are evident on the gravel at the site". Surface water runoff is discharged to the Hylebos.

Reference: Herold, Mike (State of Washington Department of Ecology), 4/30/91, Ref. ID. 247

TBT FOOTPRINT

Comments: Tributyltin footprint adjacent to site, TBT6

Reference: Allocation Team, NA, Ref. ID. 261

STREICH BROTHERS

Segment: 1 **Map Reference #:** 3

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units
DMPH	FOOTPRINT				
Comments:	Dimethyl phthalate footprint adjacent to site, DMPH2				
Reference:	Allocation Team, NA, Ref. ID. 261				
PAH	SOIL	243	mg/kg		
Comments:	Soil removed during the UST's excavation showed conc. of TPH at 29 mg/kg, 243 mg/kg, 36 mg/kg.				
Reference:	ATEC Associates, Inc, 8/14/91, Ref. ID. 42				

SUPERLON PLASTICS

Segment: 3 **Map Reference #:** 94

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units
AS	SURFACE WATER	170	ppm		
Comments:	Water sample taken from nearby ditch contained arsenic.				
Reference:	Ecology and Environment, Inc, 2/28/91, Ref. ID. 98				
PB	SURFACE WATER	3.3	ppm		
Comments:	Water sample taken from nearby ditch contained lead.				
Reference:	Ecology and Environment, Inc, 2/28/91, Ref. ID. 98				

TACOMA BOATBUILDING

Segment: 1 **Map Reference #:** 7

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units
AG	SOIL	3.7	mg/kg		
Comments:	Samples taken by DOE of sandblast grit from the site show Ag concentrations of 3.7 mg/kg on a dry weight basis.				
Reference:	Backous, Bill, 1/23/87, Ref. ID. 57				
AS	FOOTPRINT				
Comments:	Arsenic footprint adjacent to site, AS4				
Reference:	Allocation Team, NA, Ref. ID. 261				
AS	FOOTPRINT				
Comments:	Arsenic footprint adjacent to site, AS5				
Reference:	Allocation Team, NA, Ref. ID. 261				
AS	SOIL	18.73	mg/kg		
Comments:	Samples taken by DOE of sandblast grit from the site show As concentrations of 18.73 mg/kg on a dry weight basis.				
Reference:	Backous, Bill, 1/23/87, Ref. ID. 57				
BEPH	FOOTPRINT				
Comments:	Bis (2-ethylhexyl) phthalate footprint adjacent to site, BEPH3				
Reference:	Allocation Team, NA, Ref. ID. 261				
CD	SOIL				
Comments:	Investigations pursuant to MTCA revealed that both soil and sediment exceed cleanup levels for heavy metals such as antimony, arsenic, copper, lead, zinc, cadmium, and chromium, associated with sandblast grit and paint chips.				
Reference:	State of Washington Department of Ecology, April 1998, Ref. ID. 59				

CR	FOOTPRINT		
Comments:	Chromium footprint adjacent to site, CR1		
Reference:	Allocation Team, NA, Ref. ID. 261		
CR	SOIL	72.9	mg/kg
Comments:	Samples taken by DOE of sandblast grit from the site show Cr concentrations of 72.9 mg/kg on a dry weight basis.		
Reference:	Backous, Bill, 1/23/87, Ref. ID. 57		
CU	FOOTPRINT		
Comments:	Copper footprint adjacent to site, CU2		
Reference:	Allocation Team, NA, Ref. ID. 261		
CU	SOIL	1760	mg/kg
Comments:	Samples taken by DOE of sandblast grit from the site show Cu concentrations of 1760 mg/kg on a dry weight basis.		
Reference:	Backous, Bill, 1/23/87, Ref. ID. 57		
HCBD	FOOTPRINT		
Comments:	Hexachlorobutadiene footprint adjacent to site, HCBD4		
Reference:	Allocation Team, NA, Ref. ID. 261		
NI	SOIL	24.8	mg/kg
Comments:	Samples taken by DOE of sandblast grit from the site show Ni concentrations of 24.8 mg/kg on a dry weight basis.		
Reference:	Backous, Bill, 1/23/87, Ref. ID. 57		
PAH	GROUND WATER		
Comments:	Detected gasoline and diesel in groundwater.		
Reference:	State of Washington Department of Ecology, 7/8/98, Ref. ID. 107		
PB	FOOTPRINT		
Comments:	Lead footprint adjacent to site, PB1		
Reference:	Allocation Team, NA, Ref. ID. 261		
PCB	UNKNOWN		
Comments:	[Given the prevalent use of PCB's in large-scale shipbuilding (pre 1979) it is highly likely that PCB's were generated during the over 70 years of operation of TBC.]		
Reference:	U.S. Navy, March 1984, Ref. ID. 330		
SB	FOOTPRINT		
Comments:	Antimony footprint adjacent to site, SB3		
Reference:	Allocation Team, NA, Ref. ID. 261		
SB	SOIL		
Comments:	Investigations pursuant to MTCA revealed that both soil and sediment exceed cleanup levels for heavy metals such as antimony, arsenic, copper, lead, zinc, cadmium, and chromium, associated with sandblast grit and paint chips.		
Reference:	State of Washington Department of Ecology, April 1998, Ref. ID. 59		
TBT	FOOTPRINT		
Comments:	Tributyltin footprint adjacent to site, TBT1		
Reference:	Allocation Team, NA, Ref. ID. 261		

ZN FOOTPRINT

Comments: Zinc footprint adjacent to site, ZN2

Reference: Allocation Team, NA, Ref. ID. 261

ZN FOOTPRINT

Comments: Zinc footprint adjacent to site, ZN3

Reference: Allocation Team, NA, Ref. ID. 261

ZN SOIL 402 mg/kg

Comments: Samples taken by DOE of sandblast grit from the site show Zn concentrations of 402 mg/kg on a dry weight basis.

Reference: Backous, Bill, 1/23/87, Ref. ID. 57

TAYLOR WAY PROPERTIES

Segment: 4 **Map Reference #:** 47

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units

AS FOOTPRINT

Comments: Arsenic footprint adjacent to site, AS12

Reference: Allocation Team, NA, Ref. ID. 261

AS SOIL

Comments:

Reference: Clark, Mike, 8/6/86, Ref. ID. 191

BBPH FOOTPRINT

Comments: Butylbenzyl phthalate footprint adjacent to site, BBPH12

Reference: Allocation Team, NA, Ref. ID. 261

CD SOIL

Comments:

Reference: Clark, Mike, 8/6/86, Ref. ID. 191

CR FOOTPRINT

Comments: Chromium footprint adjacent to site, CR6

Reference: Allocation Team, NA, Ref. ID. 261

CR SOIL 5960 mg/kg

Comments: A random sample taken from what appeared to be "rusty material" near the shore line revealed detectable levels of Chromium.

Reference: Dalton, Olmsted & Fuglevand, Inc, 7/12/93, Ref. ID. 197

CU FOOTPRINT

Comments: Copper footprint adjacent to site, CU8

Reference: Allocation Team, NA, Ref. ID. 261

CU SOIL 8160 mg/kg

Comments: A random sample taken from what was described as "rusty material" near the shore line revealed detectable levels of Copper.

Reference: Dalton, Olmsted & Fuglevand, Inc, 7/12/93, Ref. ID. 197

DOPH FOOTPRINT

Comments: Di-n-octyl phthalate footprint adjacent to site, DOPH11

Reference: Allocation Team, NA, Ref. ID. 261

HCB	SOIL		
Comments:			
Reference:	Stegemoeller, Kate, 10/8/91, Ref. ID. 198		
HCBD	FOOTPRINT		
Comments:	Hexachlorobutadiene footprint adjacent to site, HCBD11		
Reference:	Allocation Team, NA, Ref. ID. 261		
HG	SOIL	0.36	mg/kg
Comments:	A sample taken near the bank revealed detectable levels of Mercury.		
Reference:	Dalton, Olmsted & Fuglevand, Inc, 7/12/93, Ref. ID. 197		
NI	SOIL		
Comments:			
Reference:	Clark, Mike, 8/6/86, Ref. ID. 191		
PAH	SOIL		
Comments:			
Reference:	Rosa, Susan D, 8/21/86, Ref. ID. 196		
PB	FOOTPRINT		
Comments:	Lead footprint adjacent to site, PB5		
Reference:	Allocation Team, NA, Ref. ID. 261		
PB	SOIL		
Comments:			
Reference:	Clark, Mike, 8/6/86, Ref. ID. 191		
PCB	SOIL		
Comments:			
Reference:	Clark, Mike, 8/6/86, Ref. ID. 191		
PCP	SOIL		
Comments:			
Reference:	Stefan, Fran (State of Washington Department of Ecology), 12/13/85, Ref. ID. 195		
SB	FOOTPRINT		
Comments:	Antimony footprint adjacent to site, SB7		
Reference:	Allocation Team, NA, Ref. ID. 261		
SB	SOIL	51.6	mg/kg
Comments:	A random sample taken from what appeared to be "rusty material" near the shore line revealed detectable levels of Antimony.		
Reference:	Dalton, Olmsted & Fuglevand, Inc, 7/12/93, Ref. ID. 197		
ZN	FOOTPRINT		
Comments:	Zinc footprint adjacent to site, ZN12		
Reference:	Allocation Team, NA, Ref. ID. 261		
ZN	SOIL		
Comments:			
Reference:	Clark, Mike, 8/6/86, Ref. ID. 191		

TOPE TRACTOR

Segment: 4 **Map Reference #:** 38

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units
AS	SOIL				
Comments:					
Reference:	Airo Environmental Services, Inc, 11/13/92, Ref. ID. 209				
CD	SOIL				
Comments:					
Reference:	Airo Environmental Services, Inc, 11/13/92, Ref. ID. 209				
CR	SOIL				
Comments:					
Reference:	Airo Environmental Services, Inc, 11/13/92, Ref. ID. 209				
CU	SOIL				
Comments:					
Reference:	Airo Environmental Services, Inc, 11/13/92, Ref. ID. 209				
NI	SOIL				
Comments:					
Reference:	Airo Environmental Services, Inc, 11/13/92, Ref. ID. 209				
PAH	SOIL				
Comments:					
Reference:	Byrd, Glenn M, 5/20/93, Ref. ID. 211				
PB	SOIL				
Comments:					
Reference:	Airo Environmental Services, Inc, 11/13/92, Ref. ID. 209				
ZN	SOIL				
Comments:					
Reference:	Airo Environmental Services, Inc, 11/13/92, Ref. ID. 209				

U.S. NAVAL RESERVE

Segment: 5 **Map Reference #:** 59

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units
CR	FOOTPRINT				
Comments:	Chromium footprint adjacent to site, CR7				
Reference:	Allocation Team, NA, Ref. ID. 261				
HCB	FOOTPRINT				
Comments:	Hexachlorobenzene footprint adjacent to site, HCB6				
Reference:	Allocation Team, NA, Ref. ID. 261				
MDCB	FOOTPRINT				
Comments:	1,3-dichlorobenzene footprint adjacent to site, MDCB14				
Reference:	Allocation Team, NA, Ref. ID. 261				

PAH GROUND WATER

Comments: Free product floating on groundwater in monitoring well on site.

Reference: AGI Technologies, 10/27/95, Ref. ID. 155

PAH SOIL

Comments: Soils contaminated with diesel upon UST removal.

Reference: AGI Technologies, 10/27/95, Ref. ID. 155

SB FOOTPRINT

Comments: Antimony footprint adjacent to site, SB10

Reference: Allocation Team, NA, Ref. ID. 261

US GYPSUM

Segment: 2 **Map Reference #:** 18

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units

AG FOOTPRINT

Comments: Silver footprint adjacent to site, AG1

Reference: Allocation Team, NA, Ref. ID. 261

AG GROUND WATER

Comments: References a 1992 Ecology investigation that discovered silver contamination on-site.

Reference: State of Washington Department of Ecology, 5/1/96, Ref. ID. 252

AS FOOTPRINT

Comments: Arsenic footprint adjacent to site, AS10

Reference: Allocation Team, NA, Ref. ID. 261

AS GROUND WATER 2100 ppb

Comments: A water sample taken from a bank seep by the EPA showed arsenic levels of 2,100 ppb. (1980)

Reference: Mercuri, Joyce, 2/20/98, Ref. ID. 68

AS SEDIMENT 3400 ppm

Comments: A study conducted in 1997 by AGI reported arsenic contamination within and around an area of the bank. The concentration reported here is from a sample near the mean high water mark, to the East of the contaminated bank area.

Reference: AGI Technologies, 6/12/97, Ref. ID. 272

AS SOIL 5200 ppm

Comments: A waste pile/berm located on the Northwest property boundary was discovered to be contaminated with metals including Arsenic. Analysis of samples taken from the berm detected levels of Arsernic as high as 5,200 ppm. The size of the berm was estimated at 520 feet long, 6 to 12 feet high, and 20 to 25 feet wide.

Reference: AGI Technologies, 10/23/96, Ref. ID. 292

CR FOOTPRINT

Comments: Chromium footprint adjacent to site, CR4

Reference: Allocation Team, NA, Ref. ID. 261

CR GROUND WATER 230 ppb

Comments: A water sample taken from a bank seep by the EPA showed chromium levels of 230 ppb. (1980)

Reference: Mercuri, Joyce, 2/20/98, Ref. ID. 68

CU	FOOTPRINT		
Comments:	Copper footprint adjacent to site, CU3		
Reference:	Allocation Team, NA, Ref. ID. 261		
CU	GROUND WATER	1637	ppb
Comments:	A water sample taken from a bank seep by the EPA showed copper levels of 1,637 ppb. (1980)		
Reference:	Mercuri, Joyce, 2/20/98, Ref. ID. 68		
HCBD	FOOTPRINT		
Comments:	Hexachlorobutadiene footprint adjacent to site, HCBD6		
Reference:	Allocation Team, NA, Ref. ID. 261		
HG	GROUND WATER	0.35	ppb
Comments:	A water sample taken from a bank seep by the EPA showed mercury levels of 0.35 ppb. (1980)		
Reference:	Mercuri, Joyce, 2/20/98, Ref. ID. 68		
MDCB	FOOTPRINT		
Comments:	1,3-dichlorobenzene footprint adjacent to site, MDCB10		
Reference:	Allocation Team, NA, Ref. ID. 261		
NI	GROUND WATER	179	ppb
Comments:	A water sample taken from a bank seep by the EPA showed nickel levels of 179 ppb. (1980)		
Reference:	Mercuri, Joyce, 2/20/98, Ref. ID. 68		
PAH	SEDIMENT	3600	ppm
Comments:	In 1994, sampling was conducted on sediment removed from the plant's stormwater drains. Sludge contained 340 ppm of gasoline, 1,800 ppm of diesel, and 3,600 ppm of oil.		
Reference:	AGI Technologies, 11/15/94, Ref. ID. 67		
PAH	SOIL	13,000	ppm
Comments:	Test pits dug in 1996 found diesel contamination.		
Reference:	AGI Technologies, 3/19/97, Ref. ID. 254		
PAH	SOIL		
Comments:	Results from samples taken near the AST showed elevated levels of TPH. Upon encountering the water table during the excavation, the crew noticed a black, oily film on the water surface in the excavation pit.		
Reference:	AGI Technologies, 3/19/97, Ref. ID. 65		
PAH	SOIL	45	ppm
Comments:	In 1994, soil sampling revealed 30 ppm of gasoline range hydrocarbons and 45 ppm of diesel range hydrocarbons.		
Reference:	AGI Technologies, 5/19/94, Ref. ID. 66		
PAH	SURFACE WATER	45	ppm
Comments:	Samples from the site discharge revealed oil which produced a visible "rainbow film" on the waterway.		
Reference:	Robinson, Rob, 3/26/70, Ref. ID. 253		
PB	FOOTPRINT		
Comments:	Lead footprint adjacent to site, PB2		
Reference:	Allocation Team, NA, Ref. ID. 261		

PB	GROUND WATER	920	ppb		
Comments:	A water sample taken from a bank seep by the EPA showed lead levels of 920 ppb. (1980)				
Reference:	Mercuri, Joyce, 2/20/98, Ref. ID. 68				
SB	FOOTPRINT				
Comments:	Antimony footprint adjacent to site, SB4				
Reference:	Allocation Team, NA, Ref. ID. 261				
SB	SOIL	48	ppm		
Comments:	AGI took surface soil samples and found antimony (14 to 48 ppm).				
Reference:	AGI Technologies, 2/12/96, Ref. ID. 69				
ZN	FOOTPRINT				
Comments:	Zinc footprint adjacent to site, ZN7				
Reference:	Allocation Team, NA, Ref. ID. 261				
ZN	GROUND WATER	17200	ppb		
Comments:	A water sample taken from a bank seep by the EPA showed zinc levels of 17,200 ppb. (1980)				
Reference:	Mercuri, Joyce, 2/20/98, Ref. ID. 68				

US GYPSUM LANDFILL

Segment: 1 **Map Reference #:** 9

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units
AS	SOIL	65	ppm		
Comments:	Soil sampling by Dames & Moore in 24 test pits revealed As in concentrations ranging from 2.0 to 8,130 ppm, with an average value of approximately 65 ppm.				
Reference:	United States Gypsum Company, 2/3/84, Ref. ID. 35				
CU	SOIL	510	ppb		
Comments:	Cu concentrations ranged up to 510 ppb.				
Reference:	Johnson, Art, 1/3/85, Ref. ID. 36				
PB	SOIL	180	ppb		
Comments:	Pb concentrations ranged up to 180 ppb.				
Reference:	Johnson, Art, 1/3/85, Ref. ID. 36				
ZN	SOIL	824	ppb		
Comments:	Zn concentrations ranged up to 824 ppb.				
Reference:	Johnson, Art, 1/3/85, Ref. ID. 36				

WASSER WINTERS

Segment: 1 **Map Reference #:** 1

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units
AS	FOOTPRINT				
Comments:	Arsenic footprint adjacent to site, AS1				
Reference:	Allocation Team, NA, Ref. ID. 261				
AS	SOIL				
Comments:	Reference states that in studies conducted by the EPA, arsenic has been detected in either the soils, surface waters, or adjacent creek or waterway sediments.				
Reference:	State of Washington Department of Ecology, June 1993, Ref. ID. 2				

BBPH FOOTPRINT

Comments: Butylbenzyl phthalate footprint adjacent to site, BBPH1

Reference: Allocation Team, NA, Ref. ID. 261

CU SOIL

Comments: Reference states that in studies conducted by the EPA, copper has been detected in either the soils, surface waters, or adjacent creek or waterway sediments.

Reference: State of Washington Department of Ecology, June 1993, Ref. ID. 2

MDCB FOOTPRINT

Comments: 1,3-dichlorobenzene footprint adjacent to site, MDCB1

Reference: Allocation Team, NA, Ref. ID. 261

PAH SOIL

Comments: The inspector reports that "Oil stains on the creek bank are evidence of oil reaching the creek."

Reference: Oberlander, Jim (State of Washington Department of Ecology), 1/9/75, Ref. ID. 260

PAH SOIL

Comments: TPH analysis from the excavation of a 1,000 gallon diesel UST revealed concentrations ranging from 249 ppm to 19,290 ppm.

Reference: EMCON, 1/10/94, Ref. ID. 4

PB SOIL

Comments: Reference states that in studies conducted by the EPA, lead has been detected in either the soils, surface waters, or adjacent creek or waterway sediments.

Reference: State of Washington Department of Ecology, June 1993, Ref. ID. 2

SB FOOTPRINT

Comments: Antimony footprint adjacent to site, SB1

Reference: Allocation Team, NA, Ref. ID. 261

ZN SOIL

Comments: Reference states that in studies conducted by the EPA, zinc has been detected in either the soils, surface waters, or adjacent creek or waterway sediments.

Reference: State of Washington Department of Ecology, June 1993, Ref. ID. 2

WEYERHAEUSER

Segment: 1 **Map Reference #:** 10

SOC	Matrix/Pathway	Conc.	Conc. Units	Qty.	Qty. Units	

CR FOOTPRINT

Comments: Chromium footprint adjacent to site, CR10

Reference: Allocation Team, NA, Ref. ID. 261

CU SURFACE WATER

Comments: Detected in surface water runoff.

Reference: State of Washington Department of Ecology, 8/10/89, Ref. ID. 19

MDCB FOOTPRINT

Comments: 1,3-dichlorobenzene footprint adjacent to site, MDCB4

Reference: Allocation Team, NA, Ref. ID. 261

PAH	GROUND WATER
Comments:	Describes discovery of approximately ten (10) inches of diesel product floating on the water in monitoring well No. 1. Additional wells contained floating product ranging from a film to 1.5 inches. Private consultants concluded that the free product removed had been confined to the backfill zone, and that there has been very little movement of petroleum hydrocarbons in the groundwater toward the waterway.
Reference:	Dalton, Olmsted & Fuglevand, Inc, 7/30/91, Ref. ID. 18
TBT	FOOTPRINT
Comments:	Tributyltin footprint adjacent to site, TBT1
Reference:	Allocation Team, NA, Ref. ID. 261
ZN	SURFACE WATER
Comments:	Detected in surface water runoff.
Reference:	State of Washington Department of Ecology, 8/10/89, Ref. ID. 19

APPENDIX 4

Trigger Report

TRIGGER REPORT

List of site activities and related SOCs, that were detected in site soil, groundwater, or surface water; in site effluent; or above HEA threshold in sediment immediately offshore.

3138 MARINE VIEW DR

Segment: 5 **Map Reference #** 51

Site Activities	Triggered SOC'
ASR USED AS FILL	MERCURY POLYCYCLIC AROMATIC HYDROCARBONS
PETROLEUM LEAKS/SPILLS	POLYCYCLIC AROMATIC HYDROCARBONS
UST DIESEL	POLYCYCLIC AROMATIC HYDROCARBONS

AIRO SERVICES

Segment: 4 **Map Reference #** 42

Site Activities	Triggered SOC'
AST WASTE OIL	POLYCYCLIC AROMATIC HYDROCARBONS
PETROLEUM LEAKS/SPILLS	POLYCYCLIC AROMATIC HYDROCARBONS
PETROLEUM TRANSPORTING AND STORAGE IN LEAKING CONTAINERS/DRUMS	POLYCYCLIC AROMATIC HYDROCARBONS
STORAGE AND/OR RECYCLING OF WASTE OILS CONTAINING PCBs	POLYCHLORINATED BIPHENYLS POLYCYCLIC AROMATIC HYDROCARBONS
ZINC SULFATE USE	ZINC

AK-WA SHIPBUILDING

Segment: 5 **Map Reference #** 56

Site Activities	Triggered SOC'
ARSENIC TREATED DRYDOCK	ARSENIC
AST WASTE OIL	POLYCYCLIC AROMATIC HYDROCARBONS
HYDRAULIC OIL LEAKAGE/SPILLS	POLYCYCLIC AROMATIC HYDROCARBONS
MALFUNCTIONING OIL/WATER SEPARATOR	POLYCYCLIC AROMATIC HYDROCARBONS
PAINTING BOATS OR MARINE VESSELS	CHROMIUM COPPER LEAD TRIBUTYLTIN ZINC
PCB'S FROM SHIP MAINTENANCE	POLYCHLORINATED BIPHENYLS
PETROLEUM LEAKS FROM SHIP MAINTENANCE & REPAIRS	POLYCYCLIC AROMATIC HYDROCARBONS
PETROLEUM LEAKS/SPILLS	POLYCYCLIC AROMATIC HYDROCARBONS
PRESSURE WASHING OF PAINTED BOATS OR VESSELS	CHROMIUM COPPER LEAD POLYCYCLIC AROMATIC HYDROCARBONS TRIBUTYLTIN ZINC
SANDING OR SANDBLASTING OF PAINTED BOATS OR VESSELS	ANTIMONY ARSENIC CHROMIUM COPPER LEAD

SANDING OR SANDBLASTING OF PAINTED BOATS OR VESSELS	NICKEL POLYCYCLIC AROMATIC HYDROCARBONS TRIBUTYLTIN ZINC
SHIP DISMANTLING	POLYCHLORINATED BIPHENYLS POLYCYCLIC AROMATIC HYDROCARBONS
STORAGE OF SPENT SANDBLASTING GRIT (COPPER SLAG)	ANTIMONY ARSENIC CHROMIUM COPPER LEAD NICKEL TRIBUTYLTIN ZINC
STORAGE OF SPENT SANDBLASTING GRIT (NICKEL SLAG)	NICKEL

AOL EXPRESS

Segment: 4 **Map Reference #** 79

Site Activities	Triggered SOC'
AST DIESEL	POLYCYCLIC AROMATIC HYDROCARBONS
AST WASTE OIL	POLYCYCLIC AROMATIC HYDROCARBONS
UST GASOLINE	POLYCYCLIC AROMATIC HYDROCARBONS

B&L WOODWASTE LANDFILL

Segment: 1 **Map Reference #** 8

Site Activities	Triggered SOC'
ASARCO SLAG STORAGE OR LANDFILLING	ANTIMONY ARSENIC CADMIUM COPPER LEAD ZINC
ASR USED AS FILL	ARSENIC CADMIUM COPPER LEAD POLYCYCLIC AROMATIC HYDROCARBONS ZINC

BONNEVILLE POWER

Segment: 1 **Map Reference #** 15

Site Activities	Triggered SOC'
LANDFILLING U.S. GYPSUM BAGHOUSE DUST	ANTIMONY ARSENIC COPPER LEAD ZINC
PCB TRANSFORMER USE	POLYCHLORINATED BIPHENYLS
UST GASOLINE	POLYCYCLIC AROMATIC HYDROCARBONS

BUFFELEN

Segment: 3 **Map Reference #** 28

Site Activities	Triggered SOC'
DISCHARGE OF MACHINE SHOP METAL SHAVINGS	CHROMIUM COPPER NICKEL
HYDRAULIC OIL LEAKAGE/SPILLS	POLYCYCLIC AROMATIC HYDROCARBONS
HYDROCARBON BASED WOOD PRESERVATIVE USE/STORAGE	PENTACHLOROPHENOL POLYCYCLIC AROMATIC HYDROCARBONS
PCB TRANSFORMER USE	POLYCHLORINATED BIPHENYLS

CASCADE TIMBER (YARD #1)

Segment: 3 **Map Reference #** 27

Site Activities	Triggered SOC'
ASARCO SLAG USED AS BALLAST ON LOG SORT YARD	ANTIMONY ARSENIC COPPER LEAD ZINC

CENEX AG

Segment: 4 **Map Reference #** 50

Site Activities	Triggered SOC'
UST DIESEL	POLYCYCLIC AROMATIC HYDROCARBONS

CITY OF TACOMA (#1)

Segment: 4 **Map Reference #** 95

Site Activities	Triggered SOC'
PETROLEUM LEAKS/SPILLS	POLYCYCLIC AROMATIC HYDROCARBONS

CITY OF TACOMA (STEAM PLANT)

Segment: 4 **Map Reference #** 44

Site Activities	Triggered SOC'
ASARCO SLAG STORAGE OR LANDFILLING	ANTIMONY ARSENIC CADMIUM COPPER LEAD ZINC
AST BUNKER C	POLYCYCLIC AROMATIC HYDROCARBONS
AST DIESEL	POLYCYCLIC AROMATIC HYDROCARBONS
PCB TRANSFORMER USE	POLYCHLORINATED BIPHENYLS
PETROLEUM LEAKS/SPILLS	POLYCYCLIC AROMATIC HYDROCARBONS
UNCOVERED COAL STORAGE	POLYCYCLIC AROMATIC HYDROCARBONS

DON OLINE AUTOFLUFF SITE

Segment: 3 **Map Reference #** 23

Site Activities	Triggered SOC'
ASR USED AS FILL	ARSENIC BIS (2-ETHYLHEXYL) PHTHALATE BUTYLBENZYL PHTHALATE

ASR USED AS FILL	CADMIUM COPPER DI-N-OCTYL PHTHALATE DIMETHYL PHTHALATE LEAD MERCURY NICKEL POLYCHLORINATED BIPHENYLS ZINC

DUNLAP TOWING

Segment: 2 **Map Reference #** 20

Site Activities	Triggered SOC'
ASARCO SLAG USED AS BALLAST ON LOG SORT YARD	2,4-DIMETHYLPHENOL ANTIMONY ARSENIC COPPER LEAD ZINC
HYDRAULIC OIL LEAKAGE/SPILLS	POLYCYCLIC AROMATIC HYDROCARBONS
LOG SORT YARD WITHOUT ASARCO SLAG USED AS BALLAST	2,4-DIMETHYLPHENOL
PETROLEUM LEAKS/SPILLS	POLYCYCLIC AROMATIC HYDROCARBONS

ELF ATOCHEM

Segment: 2 **Map Reference #** 19

Site Activities	Triggered SOC'
AST BUNKER C	POLYCYCLIC AROMATIC HYDROCARBONS
CHLORINE MANUFACTURING BY ELF	CHROMIUM COPPER HEXACHLOROBENZENE HEXACHLOROBUTADIENE NICKEL
MANUFACTURING PENITE	ANTIMONY ARSENIC CADMIUM COPPER LEAD MERCURY ZINC
MERCURY ARC RECTIFIER OPERATION	MERCURY
PCB TRANSFORMER USE	POLYCHLORINATED BIPHENYLS
PETROLEUM LEAKS/SPILLS	POLYCYCLIC AROMATIC HYDROCARBONS
PRODUCTION OR REPACKAGING OF DDT	P,P'-DDD P,P'-DDE P,P'-DDT

GENERAL METALS OF TACOMA

Segment: 2 **Map Reference #** 16

Site Activities	Triggered SOC'
ASARCO SLAG STORAGE OR LANDFILLING	ANTIMONY ARSENIC

ASARCO SLAG STORAGE OR LANDFILLING	CADMIUM COPPER LEAD ZINC
ASR GENERATION/STORAGE	ARSENIC BIS (2-ETHYLHEXYL) PHTHALATE BUTYLBENZYL PHTHALATE CADMIUM COPPER DI-N-OCTYL PHTHALATE LEAD MERCURY NICKEL POLYCHLORINATED BIPHENYLS POLYCYCLIC AROMATIC HYDROCARBONS ZINC
HYDRAULIC OIL LEAKAGE/SPILLS	POLYCYCLIC AROMATIC HYDROCARBONS
OCCIDENTAL RECLAMATION FILL	1,3-DICHLOROBENZENE HEXACHLOROBUTADIENE LEAD
PCB TRANSFORMER USE	POLYCHLORINATED BIPHENYLS
PETROLEUM LEAKS/SPILLS	POLYCYCLIC AROMATIC HYDROCARBONS
RECYCLING OF PCB TRANSFORMERS	POLYCHLORINATED BIPHENYLS
SHIP DISMANTLING	POLYCHLORINATED BIPHENYLS POLYCYCLIC AROMATIC HYDROCARBONS
STORAGE OF LEAD BATTERIES	LEAD
VEHICLE RECYCLING	ARSENIC BIS (2-ETHYLHEXYL) PHTHALATE BUTYLBENZYL PHTHALATE CADMIUM COPPER DI-N-OCTYL PHTHALATE LEAD MERCURY NICKEL POLYCHLORINATED BIPHENYLS POLYCYCLIC AROMATIC HYDROCARBONS ZINC

HYLEBOS MARINA

Segment: 3 **Map Reference #** 22

Site Activities	Triggered SOC'
PAINTING BOATS OR MARINE VESSELS	COPPER MERCURY TRIBUTYLTIN ZINC
PRESSURE WASHING OF PAINTED BOATS OR VESSELS	COPPER MERCURY TRIBUTYLTIN ZINC

SANDING OR SANDBLASTING OF PAINTED BOATS OR VESSELS	ANTIMONY COPPER MERCURY TRIBUTYLTIN ZINC

JONES & GOODELL BOATBUILDING

Segment: 1 **Map Reference #** 5

Site Activities	Triggered SOC'
AST DIESEL	POLYCYCLIC AROMATIC HYDROCARBONS
AST WASTE OIL	POLYCYCLIC AROMATIC HYDROCARBONS
EXPOSED ZINC ANODES	ZINC
LANDFILLING USED SANDBLAST GRIT	ANTIMONY ARSENIC CADMIUM CHROMIUM COPPER LEAD MERCURY NICKEL TRIBUTYLTIN ZINC
PAINTING BOATS OR MARINE VESSELS	CHROMIUM COPPER LEAD MERCURY TRIBUTYLTIN ZINC
PRESSURE WASHING OF PAINTED BOATS OR VESSELS	CHROMIUM COPPER LEAD MERCURY POLYCYCLIC AROMATIC HYDROCARBONS TRIBUTYLTIN ZINC
SANDING OR SANDBLASTING OF PAINTED BOATS OR VESSELS	ANTIMONY ARSENIC CADMIUM CHROMIUM COPPER LEAD MERCURY NICKEL POLYCYCLIC AROMATIC HYDROCARBONS TRIBUTYLTIN ZINC

JONES CHEMICAL

Segment: 2 **Map Reference #** 101

Site Activities	Triggered SOC'
ASR GENERATION/STORAGE	BIS (2-ETHYLHEXYL) PHTHALATE

ASR GENERATION/STORAGE	BUTYLBENZYL PHTHALATE

JOSEPH SIMON & SONS

Segment: 4 **Map Reference #** 48

Site Activities	Triggered SOC'
AST GASOLINE	POLYCYCLIC AROMATIC HYDROCARBONS
AST WASTE OIL	POLYCYCLIC AROMATIC HYDROCARBONS
PAINTING BOATS OR MARINE VESSELS	COPPER LEAD MERCURY ZINC
RECYCLING OF PCB TRANSFORMERS	POLYCHLORINATED BIPHENYLS
SANDING OR SANDBLASTING OF PAINTED BOATS OR VESSELS	ANTIMONY ARSENIC COPPER LEAD MERCURY POLYCYCLIC AROMATIC HYDROCARBONS ZINC

KAISER ALUMINUM & CHEMICAL

Segment: 1 **Map Reference #** 14

Site Activities	Triggered SOC'
KAISER AIR POLLUTION CONTROL DUST/ROOF DUST	POLYCYCLIC AROMATIC HYDROCARBONS
KAISER WET SCRUBBER SLUDGE	POLYCYCLIC AROMATIC HYDROCARBONS
PCB TRANSFORMER USE	POLYCHLORINATED BIPHENYLS

LONE STAR NORTHWEST

Segment: 1 **Map Reference #** 11

Site Activities	Triggered SOC'
ASPHALT BATCH PLANT	POLYCYCLIC AROMATIC HYDROCARBONS
UST DIESEL	POLYCYCLIC AROMATIC HYDROCARBONS

LOUISIANA PACIFIC

Segment: 1 **Map Reference #** 12

Site Activities	Triggered SOC'
ASARCO SLAG USED AS BALLAST ON LOG SORT YARD	ARSENIC COPPER LEAD ZINC
EXPOSED OILY FLOORS OR RAGS	POLYCYCLIC AROMATIC HYDROCARBONS
HYDRAULIC OIL LEAKAGE/SPILLS	POLYCYCLIC AROMATIC HYDROCARBONS
UST DIESEL	POLYCYCLIC AROMATIC HYDROCARBONS
UST GASOLINE	POLYCYCLIC AROMATIC HYDROCARBONS

MANKE LUMBER

Segment: 1 **Map Reference #** 6

Site Activities	Triggered SOC'
AQUEOUS BASED WOOD PRESERVATIVE USE/STORAGE	PENTACHLOROPHENOL
HYDRAULIC OIL LEAKAGE/SPILLS	POLYCYCLIC AROMATIC HYDROCARBONS
MALFUNCTIONING OIL/WATER SEPARATOR	POLYCYCLIC AROMATIC HYDROCARBONS

SANDING OR SANDBLASTING OF PAINTED BOATS OR VESSELS	ANTIMONY
	ARSENIC
	POLYCYCLIC AROMATIC HYDROCARBONS
	TRIBUTYLTIN
UST DIESEL	POLYCYCLIC AROMATIC HYDROCARBONS

MODUTECH MARINE

Segment: 3 **Map Reference #** 24

Site Activities	Triggered SOC'
ASR USED AS FILL	ARSENIC
	BIS (2-ETHYLHEXYL) PHTHALATE
	BUTYLBENZYL PHTHALATE
	CADMIUM
	COPPER
	DI-N-OCTYL PHTHALATE
	DIMETHYL PHTHALATE
	LEAD
	MERCURY
	NICKEL
	POLYCHLORINATED BIPHENYLS
	POLYCYCLIC AROMATIC HYDROCARBONS
	ZINC
AST WASTE OIL	POLYCYCLIC AROMATIC HYDROCARBONS
LANDFILLING USED SANDBLAST GRIT	ANTIMONY
	ARSENIC
	CADMIUM
	CHROMIUM
	COPPER
	LEAD
	MERCURY
	NICKEL
	TRIBUTYLTIN
	ZINC
PAINTING BOATS OR MARINE VESSELS	CHROMIUM
	COPPER
	LEAD
	MERCURY
	TRIBUTYLTIN
	ZINC
PRESSURE WASHING OF PAINTED BOATS OR VESSELS	CHROMIUM
	COPPER
	LEAD
	MERCURY
	POLYCYCLIC AROMATIC HYDROCARBONS
	TRIBUTYLTIN
	ZINC
SANDING OR SANDBLASTING OF PAINTED BOATS OR VESSELS	ANTIMONY
	ARSENIC
	CADMIUM
	CHROMIUM
	COPPER

SANDING OR SANDBLASTING OF PAINTED BOATS OR VESSELS	LEAD MERCURY NICKEL POLYCYCLIC AROMATIC HYDROCARBONS TRIBUTYLTIN ZINC

MURRAY PACIFIC

Segment: 3 **Map Reference #** 29

Site Activities	Triggered SOC'
ASARCO SLAG USED AS BALLAST ON LOG SORT YARD	ANTIMONY ARSENIC COPPER LEAD ZINC
UST DIESEL	POLYCYCLIC AROMATIC HYDROCARBONS

NORDLUND PROPERTIES

Segment: 1 **Map Reference #** 2

Site Activities	Triggered SOC'
UST DIESEL	POLYCYCLIC AROMATIC HYDROCARBONS

OCCIDENTAL

Segment: 5 **Map Reference #** 57

Site Activities	Triggered SOC'
AQUEOUS BASED WOOD PRESERVATIVE USE/STORAGE	PENTACHLOROPHENOL
AST DIESEL	POLYCYCLIC AROMATIC HYDROCARBONS
AST GASOLINE	POLYCYCLIC AROMATIC HYDROCARBONS
CHLORINE MANUFACTURING BY OCCIDENTAL	1,3-DICHLOROBENZENE 1,4-DICHLOROBENZENE HEXACHLOROBENZENE HEXACHLOROBUTADIENE LEAD TRICHLOROBENZENE
LANDFILLING OF SLAG MATERIAL AT OCCIDENTAL	ANTIMONY ARSENIC CHROMIUM COPPER LEAD MERCURY NICKEL ZINC
LEAD/GRAPHITE SPENT ANODE STORAGE/DISPOSAL	LEAD
MERCURY ARC RECTIFIER OPERATION	MERCURY
OCCIDENTAL RECLAMATION FILL	1,3-DICHLOROBENZENE 1,4-DICHLOROBENZENE HEXACHLOROBENZENE HEXACHLOROBUTADIENE LEAD TRICHLOROBENZENE
PCB CONTAMINATED OIL SPILL	POLYCHLORINATED BIPHENYLS

PCB TRANSFORMER USE	POLYCHLORINATED BIPHENYLS
PETROLEUM BLENDING (TETRA-ETHYL LEAD)	LEAD POLYCYCLIC AROMATIC HYDROCARBONS
PETROLEUM LEAKS/SPILLS	POLYCYCLIC AROMATIC HYDROCARBONS
PETROLEUM REFINING	POLYCYCLIC AROMATIC HYDROCARBONS
UST DIESEL	POLYCYCLIC AROMATIC HYDROCARBONS
UST GASOLINE	POLYCYCLIC AROMATIC HYDROCARBONS

OLE & CHARLIE'S MARINA

Segment: 5 **Map Reference #** 55

Site Activities	Triggered SOC'
PAINTING BOATS OR MARINE VESSELS	COPPER TRIBUTYLTIN ZINC
PRESSURE WASHING OF PAINTED BOATS OR VESSELS	COPPER POLYCYCLIC AROMATIC HYDROCARBONS TRIBUTYLTIN ZINC
SANDING OR SANDBLASTING OF PAINTED BOATS OR VESSELS	CADMIUM COPPER POLYCYCLIC AROMATIC HYDROCARBONS TRIBUTYLTIN ZINC
UST DIESEL	POLYCYCLIC AROMATIC HYDROCARBONS
UST GASOLINE	POLYCYCLIC AROMATIC HYDROCARBONS

PETROLEUM RECLAIMING SERVICES

Segment: 2 **Map Reference #** 21

Site Activities	Triggered SOC'
PETROLEUM LEAKS/SPILLS	POLYCYCLIC AROMATIC HYDROCARBONS
STORAGE AND/OR RECYCLING OF WASTE OILS CONTAINING PCBs	POLYCHLORINATED BIPHENYLS POLYCYCLIC AROMATIC HYDROCARBONS

PORT OF TACOMA (3002 TAYLOR WAY)

Segment: 1 **Map Reference #** 13

Site Activities	Triggered SOC'
ASARCO SLAG STORAGE OR LANDFILLING	ARSENIC
DISPOSAL/STORAGE OF CHARCOAL	POLYCYCLIC AROMATIC HYDROCARBONS
LANDFILLING OHIO FERRO ALLOY SMELTER SLAG	CHROMIUM
LANDFILLING USED SANDBLAST GRIT	ARSENIC CHROMIUM

SOUND REFINING

Segment: 4 **Map Reference #** 41

Site Activities	Triggered SOC'
AST WASTE OIL	POLYCYCLIC AROMATIC HYDROCARBONS
PETROLEUM LEAKS/SPILLS	POLYCYCLIC AROMATIC HYDROCARBONS
PETROLEUM REFINING	POLYCYCLIC AROMATIC HYDROCARBONS
WASTE WATER DISCHARGE FROM SOUND REFINING	ARSENIC CADMIUM

WASTE WATER DISCHARGE FROM SOUND REFINING	CHROMIUM COPPER LEAD MERCURY NICKEL PENTACHLOROPHENOL POLYCYCLIC AROMATIC HYDROCARBONS SILVER ZINC

SPECIALTY MACHINE SHOP

Segment: 5 **Map Reference #** 52

Site Activities	Triggered SOC'
PETROLEUM LEAKS/SPILLS	POLYCYCLIC AROMATIC HYDROCARBONS

STONE INVESTMENTS

Segment: 3 **Map Reference #** 25

Site Activities	Triggered SOC'
PETROLEUM LEAKS/SPILLS	POLYCYCLIC AROMATIC HYDROCARBONS

STREICH BROTHERS

Segment: 1 **Map Reference #** 3

Site Activities	Triggered SOC'
PETROLEUM LEAKS/SPILLS	POLYCYCLIC AROMATIC HYDROCARBONS
UST GASOLINE	POLYCYCLIC AROMATIC HYDROCARBONS

TACOMA BOATBUILDING

Segment: 1 **Map Reference #** 7

Site Activities	Triggered SOC'
MALFUNCTIONING OIL/WATER SEPARATOR	POLYCYCLIC AROMATIC HYDROCARBONS
PAINTING BOATS OR MARINE VESSELS	CHROMIUM COPPER LEAD TRIBUTYLTIN ZINC
PCB'S FROM SHIP MAINTENANCE	POLYCHLORINATED BIPHENYLS
PETROLEUM LEAKS FROM SHIP MAINTENANCE & REPAIRS	POLYCYCLIC AROMATIC HYDROCARBONS
PETROLEUM TRANSPORTING AND STORAGE IN LEAKING CONTAINERS/DRUMS	POLYCYCLIC AROMATIC HYDROCARBONS
PRESSURE WASHING OF PAINTED BOATS OR VESSELS	CHROMIUM COPPER LEAD POLYCYCLIC AROMATIC HYDROCARBONS TRIBUTYLTIN ZINC
SANDING OR SANDBLASTING OF PAINTED BOATS OR VESSELS	ANTIMONY ARSENIC CADMIUM CHROMIUM COPPER LEAD NICKEL POLYCYCLIC AROMATIC HYDROCARBONS

SANDING OR SANDBLASTING OF PAINTED BOATS OR VESSELS	SILVER TRIBUTYLTIN ZINC
STORAGE OF SPENT SANDBLASTING GRIT (COPPER SLAG)	ANTIMONY ARSENIC CADMIUM CHROMIUM COPPER LEAD NICKEL SILVER TRIBUTYLTIN ZINC
UST DIESEL	POLYCYCLIC AROMATIC HYDROCARBONS
UST GASOLINE	POLYCYCLIC AROMATIC HYDROCARBONS

TAYLOR WAY PROPERTIES

Segment: 4 **Map Reference #** 47

Site Activities	Triggered SOC'
AQUEOUS BASED WOOD PRESERVATIVE USE/STORAGE	PENTACHLOROPHENOL
PULP MILL OPERATIONS	POLYCYCLIC AROMATIC HYDROCARBONS
SANDBLASTING USING COPPER SLAG FOR OTHER THAN BOATS OR VESSELS	ANTIMONY ARSENIC CADMIUM CHROMIUM COPPER LEAD NICKEL ZINC
STORAGE AND/OR RECYCLING OF WASTE OILS CONTAINING PCBs	POLYCHLORINATED BIPHENYLS POLYCYCLIC AROMATIC HYDROCARBONS

TOPE TRACTOR

Segment: 4 **Map Reference #** 38

Site Activities	Triggered SOC'
ASARCO SLAG USED AS BALLAST ON OTHER THAN LOG SORT YARD	ARSENIC CADMIUM COPPER LEAD ZINC
PETROLEUM LEAKS/SPILLS	POLYCYCLIC AROMATIC HYDROCARBONS

U.S. NAVAL RESERVE

Segment: 5 **Map Reference #** 59

Site Activities	Triggered SOC'
AST DIESEL	POLYCYCLIC AROMATIC HYDROCARBONS
AST WASTE OIL	POLYCYCLIC AROMATIC HYDROCARBONS
PETROLEUM LEAKS FROM SHIP MAINTENANCE & REPAIRS	POLYCYCLIC AROMATIC HYDROCARBONS
PETROLEUM LEAKS/SPILLS	POLYCYCLIC AROMATIC HYDROCARBONS
UST DIESEL	POLYCYCLIC AROMATIC HYDROCARBONS

US GYPSUM

Segment: 2 **Map Reference #** 18

Site Activities	Triggered SOC'
ASARCO SLAG USED AS BALLAST ON LOG SORT YARD	ANTIMONY ARSENIC COPPER LEAD ZINC
MANUFACTURING ROCK WOOL	ANTIMONY ARSENIC CHROMIUM COPPER LEAD ZINC
UST BUNKER C	POLYCYCLIC AROMATIC HYDROCARBONS
UST DIESEL	POLYCYCLIC AROMATIC HYDROCARBONS
UST GASOLINE	POLYCYCLIC AROMATIC HYDROCARBONS

US GYPSUM LANDFILL

Segment: 1 **Map Reference #** 9

Site Activities	Triggered SOC'
LANDFILLING OFF-SPECIFICATION MINERAL FIBER FROM U.S. GYPSUM	ARSENIC COPPER LEAD ZINC
LANDFILLING U.S. GYPSUM BAGHOUSE DUST	ARSENIC COPPER LEAD ZINC

WASSER WINTERS

Segment: 1 **Map Reference #** 1

Site Activities	Triggered SOC'
ASARCO SLAG USED AS BALLAST ON LOG SORT YARD	ANTIMONY ARSENIC COPPER LEAD ZINC
UST DIESEL	POLYCYCLIC AROMATIC HYDROCARBONS

WEYERHAEUSER

Segment: 1 **Map Reference #** 10

Site Activities	Triggered SOC'
EXTENSIVE VEHICLE OPERATIONS OR WASHING FACILITIES	POLYCYCLIC AROMATIC HYDROCARBONS
UST DIESEL	POLYCYCLIC AROMATIC HYDROCARBONS

APPENDIX 5

Regression Analysis for Applied Distribution Factors

Regression Analysis for Applied Distribution Factors

Data from the Tetra Tech Remedial Investigation (RI) (1985) were selected for three contaminants: total chlorinated butadienes, arsenic (As), and high molecular weight polyaromatic hydrocarbons (HPAH). These contaminants were described as having rather major localized sources within the Waterway. The data used in this analysis were derived from graphs in the RI, which illustrated the distribution of these contaminates normalized to various parameters. The units displayed in the graphs are Elevations Above Reference (EAR), which show the contamination levels in the Hylebos Waterway compared to values from Carr Inlet. Dry weight plots were selected for use, as the dry weight distribution is most consistent with the mass contribution of contaminants. The EAR values were read directly from the graphs.

To evaluate the distribution percentages from a singular source (example shown for total chlorinated butadienes), the data were normalized to 100% (**Table A5-1**). The "Segment Distance" column reflects the distance (in segments) from Segment 1. The Elevation Above Reference ("EAR") column contains those values taken from the graphs showing total chlorinated butadienes normalized to dry weight. The "EAR Normalized to 100%" column shows the EAR data normalized to 100%.

The formula used to normalize the EAR data to 100% is:

(EAR)/(sumEAR) = EAR Normalized to 100%

Where: **(EAR)** = EAR value for Segment

(sumEAR) = The summation of all EAR values for all Segments.

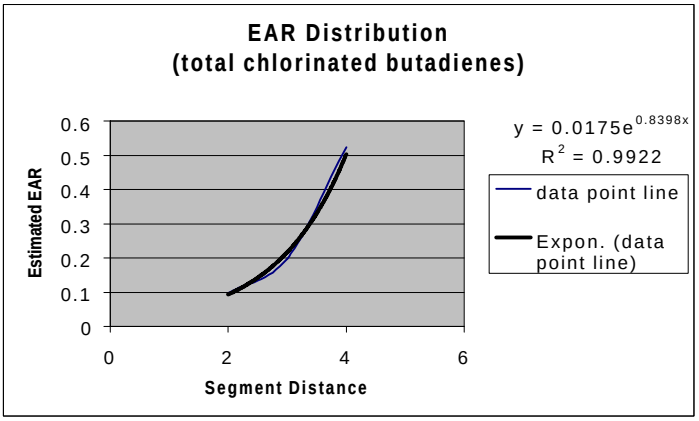
Table A5-1
TOTAL CHLORINATED BUTADIENES EAR VALUES

Segment:	Segment Distance (in segments):	EAR:	EAR Normalized to 100%:
1	0	10	1.78%
2	1	80	14.24%
3	2	55	9.79%
4	3	112	19.93%
5	4	295	52.49%
6	5	10	1.78%
Total:		562	100%

These calculated percentages were evaluated to determine which contiguous combination of segments most closely represented the release of the contaminant from a singular source, and its diminishing abundance as it traveled in one direction from the source. For the total chlorinated butadienes data displayed in **Table A5-1**, Segments 3, 4, and 5 were selected. These data were then run through a regression analysis, which yielded the following information (**Figure A5-1**).

Figure A5-1

REGRESSION ANALYSIS OF TOTAL CHLORINATED BUTADIENE DATA



As shown in the EAR distribution graph for total chlorinated butadienes (**Figure A5-1**), the non-linear (exponential) regression line displays a close fit with the data points. The R squared value of 0.9922 represents a high level of correlation between the data points and the imposed trendline. The formula generated by this analysis (displayed in the graph legend) is henceforth considered the non-linear distribution formula.

Non-Linear Distribution Formula: **$y = 0.0175e^{0.8398x}$**

Associated R squared: **$R^2 = 0.9922$**

By substituting values that correspond to the distance (in segments) from one segment to another for the X variable, the resulting Y variable yields an estimate of the EAR concentration. Based on this established correlation between the data points, the non-linear distribution formula was applied to the 1985 RI data gathered for total chlorinated butadienes. In **Table A5-2**, the column "Input X…" represents the X variable and "Output Y…" represents the Y variable in the non-linear distribution equation.

Table A5-2

RESULTING EAR ESTIMATES FROM NON-LINEAR DISTRIBUTION FORMULA

	Input X (Distance in Segments):	Output Y (Estimated EAR):	Estimated EAR Normalized to 100%:
Segment 1	0	0.0175	2.01%
Segment 2	1	0.040528316	4.64%
Segment 3	2	0.093859678	10.76%
Segment 4	3	0.21736998	24.91%
Segment 5	4	0.503407953	57.69%
Total:		0.872665927	100%

The formula used to generate the Estimated EAR Normalized to 100% is:

(OutY)/(sumOutY) = Estimated EAR Normalized to 100%

Where: **(OutY)** = Estimated EAR value

(sumOutY) = The summation of all estimated EAR values for all Segments.

The estimated EAR values normalized to 100% shown in **Table A5-2** now represents the diminishing percentage of the contaminant that will be available to neighboring segments as it travels beyond its source segment. Using the total chlorinated butadienes analysis as an example, the source segment (Segment 5), will retain approximately 58% of the contaminant loading, while Segment 4 will receive approximately 25%, and Segment 3 will receive approximately 11%, and so on.

This assumes that the distribution is uni-directional and extends on to all segments. Evaluation of the likelihood of this wide range of distribution when considered in conjunction with the precision of the available data, resulted in the limiting of affected segments to only those segments adjacent to the source segment. For example, contamination released in Segment 3 would be limited to affecting only Segments 2 and 4. In order to distribute the entire amount of the load to only those segments affected (source segment, segment to left, segment to right) a transformation of the estimated EAR normalized to 100% was required.

Table A5-3
DISTRIBUTION LIMITING TRANSFORMATION (TOTAL CHLORINATED BUTADIENES):

	Estimated EAR normalized to 100%	Adjusted EAR (less non-adjacent Segments)
Segment 5	57.69%	69.84%
Segment 4	24.91%	30.16%
Segment 3	10.76%	0
Segment 2	4.64%	0
Segment 1	2.01%	0
Total:	100%	100%

Assuming the source of the contaminant loading to be Segment 5, the only other segment affected under the new limited distribution scheme would be Segment 4. The column "Adjusted EAR (less non-adjacent segments)", shown in **Table A5-3**, contains the adjusted EAR percentage which would affect each segment after limiting the distribution. The reassignment to Segments 4 and 5 of the amount originally in Segments 1 through 3 is assumed to be proportional to the original amounts in Segments 4 and 5.

This transformation of the data was performed on total chlorinated butadienes, As, and HPAH. The resulting adjusted EAR (less non-adjacent Segments) values were then averaged by source segment and adjacent segment, which yielded the following:

Average Source Segment = 0.64024, rounded to nearest tenth = 0.6

Average Adjacent Segments = 0.35976, rounded to nearest tenth = 0.4

These percentages are the distribution factors applied throughout the waterway. For sources in Segments 2, 3, and 4 a bi-directional distribution is assumed. This strategy apportions 60% of the mass to the source segment; the remaining 40% is evenly divided between the two adjacent segments. For sources in Segment 5, the source segment again retains 60%, while 20% is assumed to move into Segment 4 and the remaining 20% is lost to Commencement Bay. For sources in Segment 1, an iterative approach is used. In step 1, 60% is assumed to remain in Segment 1, 20% enters Segment 2 and 20% enters Hylebos Creek. In successive steps, the amount entering Hylebos Creek is redistributed to Segments 1 and 2. The iterative approach yields a final distribution of 75% remaining in Segment 1 and 25% moving into Segment 2.

APPENDIX 6

References

Hylebos Waterway NRDA Allocation References

Sorted by Reference ID

Ref. ID

2 State of Washington Department of Ecology. June 1993. Consent Decree Proposed and Agreed Order Amendment Issued. Wasser Winters Log Sort Yard

3 Kennedy/Jenks Consultants. 7/29/91. Work Plan and Sampling Analysis Plan

4 EMCON. 1/10/94. Soil Remediation Former UST and Maintenance Area Final Report

5 U.S. Environmental Protection Agency. 3/19/93. Party Description Report: Kaiser

6 State of Washington Department of Ecology. December 1988. Kaiser Sludge Fact Sheet

7 Tetra Tech, Inc. 1985. Commencement Bay Nearshore/Tideflats Remedial Investigation, Final Report

8 State of Washington Department of Ecology. 7/31/76. Environmental Complaint Report Form, USCG - 07/31/1976

9 Hicks, John (Am Test). 2/9/89. Analytical Results from Water and Sediment Samples

11 Schmeil, Paul (Kaiser). 5/11/89. PCB Data/NPDES Permit Information, application to DOE

12 Sander, Stephen R. 9/15/93. Affidavit of Stephen R. Sander, Bonneville Power Administration (BPA)

13 Staff Writers. 8/20/96. "Consent Decree for Cleanup Proposed", Daily Journal of Commerce, Seattle, Washington

14 Bonneveille Power Administration. 7/22/93. Bonneville Power Administration Response to U.S. Environmental Protection Agency's CERCLA 104(e) Information Request

15 Gross, John P. 4/13/93. Affidavit of John P. Gross, Weyerhaeuser Company

16 Weyerhaeuser. 3/8/93. Weyerhaeuser Response to CERCLA 104(e)

17 PTI Environmental Services. March 1993. Evaluation of Weyerhaeuser's Tacoma Export Facility and its Relationship to the Head of Hylebos Waterway Problem Area

18 Dalton, Olmsted & Fuglevand, Inc. 7/30/91. Site Characterization Report Release of Diesel from UST Systems Tanks No. 1 and 1A, Tacoma Export Facility

19 State of Washington Department of Ecology. 8/10/89. State of Washington Department of Ecology Comments - Weyerhaeuser Log Sort Yard

20 Lone Star Northwest. date unknown. Lone Star Northwest Supplemental Response to CERCLA 104(e)

21 Owens, Ed (LP). 6/20/90. Notice of Permanent Closure of Underground Storage Tank(s)

Hylebos Waterway NRDA Allocation References

Sorted by Reference ID

Ref. ID

22 Crawford, Tom. 01/20/92. DOE Underground Storage Tank Tightness Testing Checklist

23 State of Washington Department of Ecology. 6/17/92. Inspection Report, Lone Star Northwest

26 Fledderjohann, Dirk. 9/17/93. Affidavit of Dirk Fledderjohann, Louisiana-Pacific Corporation

27 CH2MHILL. October 1987. Site investigation Report, Louisiana Pacific

29 CH2MHILL. March 1989. Groundwater Investigation Report, Louisiana Pacific

30 ATEC Associates, Inc. 5/29/92. Underground Storage Tank (UST) Closure Report Prepared for Louisiana Pacific

31 State of Washington Department of Ecology. 6/17/92. Enforcement Order No. 92TC-S214: B&L Woodwaste Site & Ecology Order No. DE 91TC-S267

32 State of Washington Department of Ecology. October 1991. Final Cleanup Action Plan B&L Woodwaste Site. United States Gypsum Company

33 State of Washington Department of Ecology. 9/16/88. Consent Decree: Murray Pacific

35 United States Gypsum Company. 2/3/84. Remedial Plan for Two Disposal Sites Located in Pierce County, Washington

36 Johnson, Art. 1/3/85. From: Art Johnson (State of Washington Department of Ecology) to Jim Krull (State of Washington Department of Ecology)

37 Kathy Vick, Hall & Associates. 6/12/84. Fact Sheet: US Gypsum

38 Errol Nelson P.E. QEP, Optimum Environment. December 1996. Phase 2 Environmental Assessment for 1621 Marine View Inc.

39 Neuston. 2/21/98. Underground Storage Tank Closure and Site assessment, Marine View, Inc.

40 Streich Brothers. 10/1/92. Streich Brothers Response to CERCLA 104(e)

41 M&M Environmental. Unknown Date. Phase I Environmental Site Assessment: Streich Brothers

42 ATEC Associates, Inc. 8/14/91. Underground Storage Tank Removal: Streich Brothers, Inc.

43 U.S. Environmental Protection Agency. September 1996. Superfund Fact Sheet, Update on Hazardous Waste Cleanup Projects, Tacoma, WA

46 State of Washington Department of Ecology. 5/9/97. Notice of Correction: Mr. Clifford L. Cochran, General Manager South Sound Marine Industries

Hylebos Waterway NRDA Allocation References

Sorted by Reference ID

Ref. ID

48 Dames & Moore. 9/6/96. Soil and Groundwater Characterization, Jones and Goodell shipbuilding facility

49 State of Washington Department of Ecology. 7/12/90. Consent Decree 90-2-06209-6: Kaiser Aluminum & Chemical Corporation

50 Beveridge, R. Paul. 5/26/89. From: R. Paul Beveridge (Heller Ehrman) to Michael Stoner (U.S. Environmental Protection Agency)

52 Manke, James D. April 1993. Affidavit of James D. Manke

54 Emcon Northwest, Inc. 3/11/92. Final Report, Focused Subsurface Investigation, Former UST site

57 Backous, Bill. 1/23/87. State of Washington Depament of Ecology Memo From: Bill Backous (State of Washington Department of Ecology) to Debbie Yammamoto (U.S. Environmental Protection Agency) Re: Tacoma Boatbuilding Spent Sandblast Grit Analysis

58 U.S. Environmental Protection Agency. 4/24/98. Agreement and Covenant Not to Sue: Ace Tank & Equipment Company

59 State of Washington Department of Ecology. April 1998. Former Tacoma Boatbuilding, State of Washington Department of Ecology Consent Decree for Prospective Purchaser Proposed April 1998

60 State of Washington Department of Ecology. 4/25/89. Inspection Report, Tacoma Boatbuilding Company 1840 Marine View Drive, Tacoma, WA 98422

61 State of Washington Department of Ecology. 11/17/95. Tacoma Boatbuilding Underground Storage Tank Closure and Site Assessment Notice

62 State of Washington Department of Ecology. 7/24/89. In the Matter of the Compliance by Tacoma Boatbuilding Company. Order No. DE 89-140

63 State of Washington Department of Ecology. 5/1/96. Second Agreed Order Amendment Proposed (USG)

64 McElroy, Christopher J. 6/30/89. From Christopher J. McElroy (USG) to Michael Stoner (U.S. Environmental Protection Agency) Re: Commencement Bay Nearshore/Tideflat Superfund Site Answers to U.S. Environmental Protection Agency April 24, 1989 PRP Letter

65 AGI Technologies. 3/19/97. Summary Report: Hydrocarbon Remediation USG Interiors, Inc.

66 AGI Technologies. 5/19/94. Phase I Remedial Investigation: USG Interiors, Inc.

67 AGI Technologies. 11/15/94. From: Pamela Morrill (AGI Technologies) to Frank May (USG) Re: Storm Drain Cleaning Summary Phased Remedial Investigation, USG Interiors, Inc.

Hylebos Waterway NRDA Allocation References

Sorted by Reference ID

Ref. ID

68 Mercuri, Joyce. 2/20/98. From: Joyce Mercuri (State of Washington Department of Ecology) to Frank May (USG) Re: Acceptance of Bank Cleanup and Restoration Work

69 AGI Technologies. 2/12/96. Final Source Control Plan - Interim Actions USG Interiors, Inc.

70 State of Washington Department of Ecology. 12/11/92. Consent Decree No. 92-2-11351-7 Re: State of Washington vs. ASARCO, Pierce County Superior Court

74 Smith, Dave. 10/4/93. From: Dave Smith (UBAT) to Karen Keeley (U.S. Environmental Protection Agency) Re: Addendum to the Milestone 1 Source Control Status Report for the Head of Hylebos Problem Area in the Commencement Bay Nearshore/Tideflats Superfund Site

75 Hart Crowser. 2/19/86. Results of Preliminary Chemical Testing Surface Soil Samples, 3003 Taylor Way Property

76 General Metals. 9/7/93. General Metals Response to CERCLA 104(e)

79 U.S. Environmental Protection Agency. 1/25/93. Party Description Report (General Metals)

81 EMCON Northwest, Inc. 11/30/92. From: EMCON Northwest, Inc. to Norm Webb (General Metals) Re: Soil Sampling and Compliance Monitoring Well Installation General Metals of Tacoma, Inc.

82 Hart Crowser. 7/28/89. Site Characterization Report Buffelen Woodworking Company Volume 1

83 State of Washington Department of Ecology. 9/19/78. State of Washington Department of Ecology Inspection Report, Buffelen Woodworking

85 Shenk, Chuck. 7/19/93. From: Chuck Shenk (Murray Pacific) to Allison Hiltner (U.S. Environmental Protection Agency) Re: Response to Special Notice Letter Information Request

87 Shenk, Jr., Clair A. 3/23/93. Affidavit of Clair A. Shenk Jr. - Murray Pacific Corporation

88 Neumiller, Christine. 10/7/92. From: Christine Neumiller (State of Washington Department of Ecology) to Jim Gillie (MP) Re: Murray Pacific Yard 1 Chromium Contamination on Former USG Property

89 Oline, Ron S. 3/31/93. Affidavit of Ron S. Oline, President of Hylebos Marina

91 Getchell, Christopher L. 12/23/86. Inter-Departmental communication (City of Tacoma) From: Christopher L. Gretchell (COT) to Ron Robinson(SUD) Re: Harbor Service Inc. - Heavy Metals Analysis

92 EMCON Northwest, Inc. 1/26/95. Oline/Mathers Auctioneers Site Preliminary Investigation

93 Mercuri, Joyce. 3/4/93. From: Joyce Mercuri (State of Washington Department of Ecology) to Megan White Re: Recommendation for Enforcement, Oline Marine View Drive Auto Fluff Site

Hylebos Waterway NRDA Allocation References

Sorted by Reference ID

Ref. ID

94 Swindahl, Carl. 4/7/93. Affidavit of Carl Swindahl, Modutech Marine, Inc.

95 Mercuri, Joyce. 7/12/94. State of Washington Department of Ecology UBAT memo From: Joyce Mercuri (State of Washington) Department of Ecology) to Modutech Marine File Re: Status of Voluntary Grit Cleanup

96 Gooding, Lynn. 4/16/91. From: Lynn Gooding (State of Washington Department of Ecology) to Modutech Marine Re: Review of Sample Analysis

98 Ecology and Environment, Inc. 2/28/91. Technical Assistance Team Site Assessment Final Report for Taylor Way Drums (Superlon Plastics)

100 Enpsall, Glenda. 3/2/00. State of Washington Department of Ecology Environmental Report Tracking System Incident S5009559 From: Glenda Enpsall to State of Washington Department of Ecology Re: Louisiana Pacific

101 Gray, Don. 11/18/99. State of Washington Department of Ecology Environmental Report Tracking System Incident S507808 From: Don Gray to State of Washington Department of Ecology Re: Louisiana Pacific

102 Applied Geotechnology Inc. 10/2/90. Water Treatment Work Plan Jones Goodell Yachts Tacoma, WA

103 Mercuri, Joyce. May 1992. UBAT Inspection of Jones Goodell Corporation, 1690 Marine View Drive, Tacoma, WA

106 Jowise, Peter. 9/29/86. From: Peter Jowise (Ecology & Environment) to John Osborn (Region X U.S. Environmental Protection Agency) Re: Trip report - Tacoma Boatbuilding Co., Inc.

107 State of Washington Department of Ecology. 7/8/98. Prospective Purchaser Consent Decree No. 98-2-07617-3 Re: The Former Tacoma Boatbuilding Company Property

108 CH2MHILL, Inc. 10/13/93. Offsite Migration Pathway Assessment BPA Tacoma Substation

109 Hart Crowser, Inc. 4/6/88. Phase III Sampling Program Buffelen Woodworking Company, Tacoma, WA

110 Guizzetti, Joe D. 6/23/89. From: Joe Guizzetti (Buffelen) to Michael Stoner (U.S. Environmental Protection Agency) Re: Response to Commencement Bay Nearshore/Tideflats Superfund Site General Notice Letter

112 SECOR International, Inc. 4/9/96. Process Chemistry at Elf Atochem Penite Plant and Results of Arsenic/Metals Sediment Investigation

114 Becker, Rocky. 2/17/94. From: Rockey Becker (AK-WA) to Sandra Stephens (State of Washington Department of Ecology) Re: Discharge Monitoring Reports for NOV-JAN 1994

Hylebos Waterway NRDA Allocation References

Sorted by Reference ID

Ref. ID

115 Hart Crowser. 1/9/97. AKART Analysis Report AK-WA Shipyard 401 Alexander Ave, Tacoma, WA

119 State of Washington Department of Ecology. May 1991. State of Washington Department of Ecology NPDES Permit Fact Sheet, AK-WA Incorporated

120 Nelson, Ruth A. 9/16/86. From: Marine Power and Equipment Co., Inc. (Ruth A. Nelson) to Robie Russel (U.S. Environmental Protection Agency) Re: AK-WA Shipbuildings Recent Drydock Purchase

121 AK-WA Shipbuilding. Unknown Date. AK-WA Shipbuilding Response to NPDES Permit Application Questionnaire

122 U.S. Environmental Protection Agency. November 1997. U.S. Environmental Protection Agency Office of Compliance Sector Notebook Project, Profile of the Shipbuilding and Repair Industry

123 Giannotti Corporation. 1/29/97. AK-WA Shipyard Division Hazardous Waste Management and Disposal Plan

125 Becker, Rocky. December 1992. From: Rockey Becker (AK-WA) to Sandra Stephens (State of Washington Department of Ecology) Re: Spill Event Report Annual

127 Duerr, Miriam (State of Washington Department of Ecology). 2/20/95. Environmental Report: AK-WA

128 Becker, Rocky. 6/19/95. State of Washington Department of Ecology Environmental Report Tracking System Referral Incident ID: S1501 Re: Spill Report at AK-WA

129 Becker, Rocky. 4/24/89. From: Rocky Becker (AK-WA) to Paul Sonnenfeld (State of Washington Department of Ecology) Re: Spill Contingency Plan

130 Warren, Robert. 10/26/89. State of Washington Department of Ecology Environmental Report Spill Incident Report

131 James, Cindy. 9/26/90. State of Washington Department of Ecology Environmental Report Spill Incident Report

132 USCG. March 1975. State of Washington Department of Ecology Pollution Complaint Report Form, Complaint No. 0225 (Hylebos Waterway)

133 Robison, Dan. 9/14/72. From: Dan Robison (U.S. Environmental Protection Agency) to Mike Price (State of Washington Department of Ecology) Re: Recent Zidell Dismantling Visit

134 Robison, Ron. 3/5/70. Water Pollution Control Commission Memo Re: Zidell Dismantling - Tacoma (accidental spill)

135 U.S. Environmental Protection Agency. 2/26/88. RCRA Facility Assessment Report Occidental Chemical Corp. Tacoma, WA

Hylebos Waterway NRDA Allocation References

Sorted by Reference ID

Ref. ID

137 Scholes, D.A. 5/14/85. From: D.A. Scholes (Occidental) to Catherine Massimino (U.S. Environmental Protection Agency) Re: Response to U.S. Environmental Protection Agency Part B Questionnaire

138 McGregor, Alastair J.H. 1/11/91. From: Alastair J.H. McGregor (Occidental) To: Karen L. Keeley (U.S. Environmental Protection Agency) Re: Tacoma Plant RFI-II

141 Robinson, Ron. 11/6/87. City of Tacoma Industrial Wastewater Pretreatment Program Inspection Report Re: Occidental Chemical

142 Cloud, Greg and Mark Pacifico. 8/31/93. NPDES Inspection Occidental Chemical Corporation

143 Monahan, Frank. 9/17/82. State of Washington Department of Ecology Environmental Complaint Re: Hooker Chemical Spill

144 Abercrombie, Will. 2/22/84. State of Washington Department of Ecology Environmental Complaint Re: Occidental Chemical Oil Spill

145 Cook, Kyle. 6/1/84. State of Washington Department of Ecology Environmental Complaint Re: Occidental Oil/Process Wastewater

146 Iams, Karl B. 9/30/94. From: Karl Iams (Occidental) to Mike Osweiler (State of Washington Department of Ecology) Re: Oil Spill Incident on 09/16/94

149 Hart Crowser. 6/14/94. Preliminary Site Investigation PRI Northwest, Inc. 709 Alexancder Ave Tacoma, WA, Volume 1

150 Ecology and Environment, Inc. May 1990. Special Study Report PRI Northwest, Inc. Tacoma, WA

151 Hart Crowser. 11/24/93. Revised PRI Public Participation Plan Worksheet. PRI Remedial Investigation

152 Mohsen Kourehdar. 9/23/94. From: Mohsen Kourehdar (State of Washington Department of Ecology) to Alastair McGregor (Occidental) Re: Notice of Potential Liability for the Release of Hazardous Substances Under the MTCA

153 State of Washington Department of Ecology. September 1995. Enforcement Order No. 95TC-S242 PRI Northwest, Occidental Chemical Corporation, F.O. Fletcher, Inc.

154 URS Consultants, Inc. 1/22/96. Historical Survey of the Naval and Marine Corps Reserve Center, Tacoma, WA

155 AGI Technologies. 10/27/95. Petroleum Hydrocarbon Evaluation, 721 Alexander Avenue Tacoma, WA

156 Olson, Donald S. 9/20/93. Affidavit of Donald S. Olson, Ole and Charlie's Marinas

Hylebos Waterway NRDA Allocation References

Sorted by Reference ID

Ref. ID

157 Herold, Hyun Um, Roy Young. 12/4/90. UBAT Inspection Summary, Ole and Charlie's High and Dry Co. No. 3

158 Weston, Donald (SAIC). 7/17/85. Potential Hazardous Waste Site Preliminary Assessment, Sound Refining

159 Cloud, Greg (State of Washington Department of Ecology). 8/6/85. State of Washington Department of Ecology Environmental Complaint Re: Sound Refining Oil Spill

160 Osweiler, Mike (State of Washington Department of Ecology). 11/27/89. State of Washington Department of Ecology Environmental Report Re: Sound Refining Fuel Spill

161 Armstrong, Kathy (State of Washington Department of Ecology). 4/9/97. State of Washington Department of Ecology Environmental Report Re: Sound Refining Oil Spill. Incident S2036

162 Cleveland, Verna (State of Washington Department of Ecology). 11/22/91. State of Washington Department of Ecology Environmental Report Re: Sound Refining Oil Spill. Incident S4633

163 Mcleod, Nancy (State of Washington Department of Ecology). June 1992. State of Washington Department of Ecology Environmental Report Re: Sound Refining Oil Spill. Incident S5962

164 Oberlander, Jim (State of Washington Department of Ecology). 4/24/93. State of Washington Department of Ecology Environmental Report Re: Sound Refining Oil Spill. Incident S7647

165 Osweiler, Mike (State of Washington Department of Ecology). 11/10/94. State of Washington Department of Ecology Environmental Report Re: Sound Refining Oil Spill. Incident S262

166 Smith, Richard. 5/6/94. From: Richard Smith to AK-WA. RE: Notice of Intent to File Suit Under the Clean Water Act (CWA)

168 Becker, Rocky. 8/24/89. From: Rockey Becker (AK-WA) to Michael Stoner (U.S. Environmental Protection Agency) Re: Commencement Bay Nearshore/Tideflats Superfund Site

170 Manning, Brett (State of Washington Department of Ecology). 5/15/91. Environmental Report: AK-WA. S3028

174 Region 10 S&A Inspection Team. 7/3/79. From: U.S. Environmental Protection Agency Region 10 S&A Inspection Team to Gary L. O'Neal Re: Inspection - Hooker Plant and Waste Disposal Operations Tacoma, WA

179 Herold, Mike. 1/6/92. From: Mike Herold to File Re: Results of Analyses of Samples Collected on 05/14/91 at the Olson and Curran Marina

180 Coleman, Marv. 11/17/94. UBAT Inspection Summary Ole and Charlie's Marina

Hylebos Waterway NRDA Allocation References

Sorted by Reference ID

Ref. ID

181 Rock, Chet. 3/2/79. State of Washington Department of Ecology Memorandum From: Chet Rock (Industrial Section) to Dick Brukhalter (Industrial Section) Re: Oil and Grease Violations at Sound Refining

182 Burd, Robert S. 9/29/83. From: Robert Burd (U.S. Environmental Protection Agency) to Bruce Cameron (State of Washington Department of Ecology) Re: NPDES Federal Enforcement Candidates in Washington

183 State of Washington Department of Ecology. 7/1/95. Sound Refining Company Class II Inspection; July/August 1994

184 Rushing, Nicky and Lee Bagley. 11/3/92. State of Washington Department of Ecology Solid and Hazardous Waste Program Inspection Report, Jones Chemical

185 Herold, Mike. 9/16/91. From: Mike Herold (State of Washington Department of Ecology) to Kevin Godbout Re: Analyses of Jones Chemical, Tacoma, Environmental Samplesm draft

186 Ebasco Plant Services, Inc. November 1988. Final Draft Operations Plan for Tacoma Steam Plant No. 2 Repowering Project

187 Powers, Suzanne, et. al.. 5/9/90. Narrative Inspection Report RCRA Compliance Inspection, Tacoma Steam Plant

188 Post, Russell. 9/20/93. Affidavit of Russell Post, Tacoma Public Utilities

189 Gooding, Lynn. 4/4/91. From: Lynn Gooding (UBAT) to Mark Gamble Re: Tacoma Steam Plant Inspection Follow up

190 Gooding, Lynn and Megan White. 3/19/91. UBAT Inspection Summary Tacoma Steam Plant

191 Clark, Mike. 8/6/86. From: Mike Clark (ChemPro) to Alex Koch Re: Taylor Way Property Rust Samples

192 Torlai, Catherine M. 10/20/92. From: Catherine M. Torlai (The Sabey Companies) to Ms. Allison Hiltner (U.S. Environmental Protection Agency) Re: Commencement Bay Nearshore/Tideflats Superfund Site, Tacoma, Washington. - Response to Request for Information 9/15/92

194 Hart Crowser. 6/4/85. Historical Records Search and Site Reconnaissance Industrial Waterfront Property (Brazier Property)

195 Stefan, Fran (State of Washington Department of Ecology). 12/13/85. Handwritten Notes Regarding Taylor Way Properties

196 Rosa, Susan D. 8/21/86. From: Susan Rosa (Analytical Resources) to Mike Clark (ChemPro) Re: Samples Submitted for PCP Analysis for ARI job #168

Hylebos Waterway NRDA Allocation References

Sorted by Reference ID

Ref. ID

197 Dalton, Olmsted & Fuglevand, Inc. 7/12/93. Results of Site Investigation Taylor Way Property Site, Port of Tacoma, WA

198 Stegemoeller, Kate. 10/8/91. From: Kate Stegemoeller (ARI) to Joe Depner (John Mathes & Associates) Re: Analytical Results for Client Project: Taylor Way

199 Kennedy Jenks Consultants. 6/29/98. Cleanup Action Plan Joseph Simon & Sons 1601 Taylor Way Site

200 Baker, David. 4/28/93. Declaration of David Baker on Behalf of Cenex AG, Inc.

201 Kleinfelder, Inc. 8/12/92. Soil Sampling and Analyses Pits A, B, C, D and E Cenex Feed Plant, 1801 Taylor Way, Tacoma, WA

202 Herold, Coleman. 3/25/92. UBAT Inspection Summary Miles Transport Services, Inc.

204 Camp, Jr., Richard J. 9/17/93. Affidavit of Richard J. Camp, Jr., Bay Zinc Company

205 Rozmyn, Lisa, Marilou Pivirotto and Marc Pacifico. 3/21/00. Recommendation for Enforcement Action Water Quality Program, Airo Environmental Services

206 Woodward-Clyde Consultants. 5/16/91. Tacoma Cogeneration Project Phase 2 Site Assessment

207 Baroga, Enrico. 8/13/85. From: Enrico Baroga (PCHD) to Greg Weeks (J.B. Gottstein & Co.) Re: Site Inspection

208 Dames & Moore. 3/29/99. Final Independent Remedial Action AOL Express Tacoma, WA

209 Airo Environmental Services, Inc. 11/13/92. Site Assessment Report Banyon Rail Site, 4124 E. 11th Street, Tacoma, WA

211 Byrd, Glenn M. 5/20/93. From: Glenn M. Byrd to Allison Hiltner (U.S. Environmental Protection Agency) Re: Barbara W. Allen Property

212 Posner, Ernest G. 11/20/92. From: Ernest G. Posner (The PQ Corporation) to Allison Hiltner Re: CERCLA Response from Philadelphia Quartz

213 State of Washington Department of Ecology. December 1991. Final Cleanup Action Plan 3009 Taylor Way Site, Tacoma, WA

214 Stefan, F. 11/24/87. State of Washington Department of Ecology Inspection Report 3009 Taylor Way (Pennwalt)

215 Cook, K. (State of Washington Department of Ecology). 12/10/84. State of Washington Department of Ecology Environmental Complaint Re: Echo Lumber Oil Spill

Hylebos Waterway NRDA Allocation References

Sorted by Reference ID

Ref. ID

216 Pierce, Richard (State of Washington Department of Ecology). 4/18/85. State of Washington Department of Ecology Environmental Complaint Re: Echo Lumber Oil Spill

217 State of Washington Department of Ecology. Unknown Date. State of Washington Department of Ecology Photographs Taken of 3009 Taylor Way Site

218 State of Washington Department of Ecology. 6/24/87. Consent Decree No. DE 86-S159 Re: Pennwalt Corporation, Inc.

219 Edquist, Paul (Pennwalt). 3/13/86. Uniform Hazardous Waste Manifest, Pennwalt Corporation

220 State of Washington Department of Ecology. Unknown Date. State of Washington Department of Ecology Fact Sheet Re: Atochem NPDES Permit No. WA-000311-5 (No Date)

221 Derieux, Walter. September 1995. U.S. Environmental Protection Agency Office of Compliance Sector Notebook Project, Profile of the Inorganic Chemical Industry (EPA/310-R-95-004)

222 State of Washington Department of Ecology. Unknown Date. State of Washington Department of Ecology Handwritten Notes Re: Pennwalt Discharge Composition

223 Kennedy/Jenks/Chilton, Inc. March 1989. Solid Waste Management Plan Final Report Pennwalt Corporation Tacoma Facility

224 Technical Assistance Team (U.S. Environmental Protection Agency). 2/1/85. TAT Activities Report, Spill Response and Site Assessment Pennwalt Corporation Tacoma, WA

225 Hunt, Katherine (Tacoma News Tribune). 2/17/48. Magic of Chemistry Important to Industrial Development of City (Progress and Development Section)

226 Maibauer, William (State of Washington Department of Ecology). 1/8/86. State of Washington Department of Ecology Environmental Complaint Re: Pennwalt Oil Spill

228 Willey, Dan (State of Washington Department of Ecology). 10/7/86. State of Washington Department of Ecology Environmental Complaint Re: Pennwalt Oil Spill

230 Ecology & Environment, Inc. November 1987. Preliminary Assessment Report Pennwalt Corporation Site Tacoma, WA

231 Yake, Bill (State of Washington Department of Ecology). 3/9/82. From: Bill Yake (State of Washington Department of Ecology) to Frank Monahan (State of Washington Department of Ecology) Re: Pennwalt Corporation Class II Survey June 2-3, 1981

232 Johnson, Art and Shirley Prescott. 3/15/82. From: Art Johnson and Shirley Prescott (State of Washington Department of Ecology) to Frank Monahan Re: Receiving Environmental Survey in Hylebos Waterway at the Pennwalt Corporation Facility, Tacoma, WA, June 2, 1981

Hylebos Waterway NRDA Allocation References

Sorted by Reference ID

Ref. ID

234 Bishop, Bob (State of Washington Department of Ecology). 12/17/71. Handwritten Notes Re: Outfall Concentrations

235 Pennwalt Corporation. 7/1/81. Meeting Agenda July 1, 1981 Re: Pennwalt Hydrogeological Review, Groundwater Sampling, and Laboratory Problems

236 Schlender, Mike. 4/16/85. From: Mike Schlender (State of Washington Department of Ecology) to Tom Eaton (State of Washington Department of Ecology) Re: PCB Analysis of Pennwalt Soil Samples

237 Boateng & Associates, Inc. 10/1/90. Draft Report, Results from Phase III Sediment Sampling, Elf Atochem North America, Inc.

238 Wolf, Fredrick and Rodgers, William. 4/20/01. Bioremediation of Petroleum Hydrocarbon-Contaminated Soils, Atofina Wypenn Site, Tacoma, Washington

239 Applied Geotechnology, Inc. 3/25/88. Cascade Timber Yard #1

241 General Metals of Tacoma. Unknown Date. Chronological Listing of Toxic Substance Releases from General Metals

242 Pacifico, Marc (State of Washington Department of Ecology). 8/29/94. From: Marc Pacifico (State of Washington Department of Ecology) to General Metals of Tacoma Inc. Re: NPDES Discharge Limit Exceedance

243 Marsh, Dan. 2/19/93. Checklist for Permanent Closure of Underground Storage Tanks, Hylebos Marina Inc.

245 Sweet-Edwards/EMCON, Inc. 7/18/88. Preliminary Remedial Investigation, General Metals of Tacoma, Inc. Volume 1

246 Dunn, Patrick F. 5/4/88. From: Patrick Dunn (Sweet-Edwards/EMCON) to Norm Webb (MMI) Re: Removal of Petroleum Tanks at General Metals

247 Herold, Mike (State of Washington Department of Ecology). 4/30/91. UBAT Inspection Summary, Don Oline Site 2228 Marine View Drive (Stone Investments)

248 White, Megan (State of Washington Department of Ecology) et al.. 6/21/89. State of Washington Department of Ecology Inspection Report, General Metals

249 Baker, Craig and Brett Betts. 6/13/80. State of Washington Department of Ecology Environmental Complaint Report Form Re: Oil Spill from General Metals

250 Weston, Donald (JRB Associates). 11/15/84. State of Washington Department of Ecology Potential Hazardous Waste Site Preliminary Assessment Re: Petroleum Reclaiming Service

Hylebos Waterway NRDA Allocation References

Sorted by Reference ID

Ref. ID

251 Petroleum Reclaiming Service. 3/24/97. PRS Response to State of Washington Department of Ecology Environmental Checklist

252 State of Washington Department of Ecology. 5/1/96. State of Washington Department of Ecology Second Agreed Order Amendment Proposed May 1996, USG Interiors

253 Robinson, Rob. 3/26/70. From: Ron Robinson (Water Pollution Control Commission) to Chuck and Files Re: U.S. Gypsum Tacoma

254 AGI Technologies. 3/19/97. Summary Report Hydrocarbon Remediation USG Interiors, Inc. 2301 Taylor Way Tacoma, WA

256 Striplin Environmental Associates, Inc. 1/11/95. Summary of Existing Information, Hylebos Waterway Pre-Remedial Design

258 Hart Crowser. 1/21/94. Completion Report OFA/Pennwalt Area Blair Backup Property Port of Tacoma, Washington

259 U.S. Environmental Protection Agency. 3/9/93. U.S. Environmental Protection Agency Docket No. 1093-03-05-106 Re: Blair Waterway Property and Blair Backup Property. Administrative Order on Consent for a Removal Action

260 Oberlander, Jim (State of Washington Department of Ecology). 1/9/75. From: Jim Oberlander to Lloyd Taylor Re: WDOE Notice of Violation - Wasser and Winters

262 Golder Associates. 2/16/88. Work Plan for Expedited Response Action, B&L Landfill, Milton, Washington

263 Buffelen Woodworking. 12/21/71. Map of Buffelen Site and Existing Discharge to Hylebos Waterway

264 Mercuri, Joyce. 4/8/93. From: Joyce Mercuri to Mark Burley Re: Joseph Simon & Sons

265 Sacha, Leslie. 12/4/92. From: Leslie Sacha (Port of Tacoma) to Karen Keeley Re: Notification of Discovery of Historical Contamination at the Inner Hylebos Site

266 Landau Associates, Inc. 10/30/91. From: Robert G. Fulton (Landau Associates, Inc.) to Curtis Ratcliff (Port of Tacoma) Re: Inner Hylebos Property Results of Stage II Peninsula Investigation

267 Landau Associates, Inc. and SEACOR. 2/27/91. Final Work Plan Auto Refuse Removal Inner Hylebos Property Port of Tacoma

268 State of Washington Department of Ecology. 10/17/89. State of Washington Department of Ecology Site Inspection Report at Specialty Machine Shop.

271 Bantowsky, Margit, et. al. 5/26/95. Toxics Reduction Unit Southwest Regional Office Site Visit Report, Tacoma Boatbuilding

Hylebos Waterway NRDA Allocation References

Sorted by Reference ID

Ref. ID

272 AGI Technologies. 6/12/97. Work Plan Bank Cleanup and Restoration USG Interiors, Inc. 2301 Taylor Way, Tacoma, WA

273 Mercuri, Joyce (State of Washington Department of Ecology). 11/29/94. Handwritten notes Re: Hylebos Waterway Intertidal Sampling with Striplin Environmental Association

274 Gooding, Lynn, et al. 4/5/90. State of Washington Department of Ecology UBAT Inspection Summary Diesel Truck and Marine Repair, 2215 Marine View Drive

275 Yake, Bill. 6/4/80. From: Bill Yake to Frank Monahan Re: Hooker Chemical Corp., Tacoma, Class II Inspection

276 Occidental Chemical Corp. 9/13/96. Field Activities Data Report, Characterization of the Embankment Along the Hylebos Waterway on the Oxychem-Tacoma Facility

277 Norton, Dale (State of Washington Department of Ecology). 1/17/83. From: Dale Norton to Fred Fenske Re: Sound Refining Company Class II Inspection, June 30 - July 1, 1981

279 Mercuri, Joyce et al. 6/17/92. State of Washington Department of Ecology Urban Bay Action Program Inspection Report Modutech Marine, Inc.

280 Saybe Contractors, Inc. 5/4/98. Underground Storage Tank Closure and Site Assessment Notice, Thermafiber

281 O'Sullivan Construction Inc. 6/23/92. State of Washington Department of Ecology Underground Storage Tank 30 Day Notice of Intent to Close/Decommission Tanks, USG Interiors, Inc.

282 Stinson, Margaret et al., State of Washington Department of Ecology. 3/1/87. An Investigation into Potential Sources of PCB Contamination in Hylebos Waterway

284 Osweiler, Mike C. 9/23/91. From: Mike C. Osweiler to File Re: Visit to Sound Refining, Inc. 2628 Marine View Drive, Tacoma, WA

285 Anderson, Doug. 2/15/84. State of Washington Department of Ecology Environmental Complaint Re: Waste Oil on Decks at Tacoma Boatbuilding

286 Hyland, Danie W. 7/23/98. Request for Coverage Under NPDES Boatyard General Permit, Hyland Marine

287 Dames & Moore. 8/22/97. Remedial Action Report. Former Jones-Goodell Shipbuilding Facility, 1690 Marine View Drive

288 State of Washington Department of Ecology. 5/19/83. PCB Inspection Narrative, General Metals of Tacoma, 1902 Marine View Dr, Tacoma, WA 98421

Hylebos Waterway NRDA Allocation References

Sorted by Reference ID

Ref. ID

289 Kennedy/Jenks/Chilton, Applied Geotechnology Inc. 8/1/87. Focused Feasibility Study for Reducing Metals Loadings to the Hylebos Waterway, Murray Pacific Corp. Log Sort Yard #1, Tacoma, WA

290 AGI Technologies. 10/19/95. Draft Source Control Plan - Interim Actions. USG Interiors, Inc. 2301 Taylor Way, Tacoma, WA

291 State of Washington Department of Ecology. 3/1/94. State of Washington Department of Ecology Agreed Order No. DE 93TC-S163 Re: U.S.G. Interiors, Inc.

292 AGI Technologies. 10/23/96. Berm Evaluation and Disposal, USG Interiors, Inc. 2301 Taylor Way, Tacoma, WA

293 Mercuri, Joyce. 11/18/92. From: Joyce Mercuri to Dave Smith Re: Auto Fluff at Mather Auctioneers Site

296 Norton, Dale et al. (State of Washington Department of Ecology). 2/27/85. From: Dale Norton to Jim Krull Re: CBNT RI, Assessment of Log Sort Yards as Metals Sources to Commencement Bay Waterways, November 1983 – June 1984

297 Reale, Dom. 3/22/93. From: Dom Reale to Megan White Re: Recommendation for Enforcement USG Interiors, Inc.

298 Fuglevand, Paul. 5/28/93. From: Paul Fuglevand to Allison Hiltner (U.S. Environmental Protection Agency) Re: Hylebos Waterway 3002 Taylor Way, Ohio-Ferro Alloys (OFA)

299 AISI. 6/14/99. Tool Steel Chemical Composition, AISI Composition Tables, http://www.sousacorp.com/TS-Comp.htm

300 AISI. 1/1/97 printed 10/20/00. Chemical Composition of Stainless Steel, AISI Standard Type Numbers, Chemical Composition Limits and Ranges, http://www.fpsmith.com/chemcomp.htm

301 Nord, Tim L. 11/1/83. From: Tim L. Nord to Fred C. Fenske Re: Chapter 173-303 WAC Compliance Inspection at Kaiser Aluminum & Chemical Corp., Tacoma ---WAD 001882984

302 General Metals of Tacoma. 2/13/89. Shredder Residue: An Informational Packet From General Metals Of Tacoma

303 State of Washington Department of Ecology. 7/30/97. Consent Decree No. 97-2-09719-9 Re: State of Washington Department of Ecology vs. Donald E. Oline, et al.

304 Wilson, Alan S. (The Institute of Materials). 1995. Plasticisers, Principles and Practice

305 Peeler, Maria. 1/31/90. From: Maria Peeler to File Re: Land Disposal Restriction Issues at Pennwalt (now Atochem North America)

307 Hart Crowser. 1/29/92. Final Investigation Report, Blair Backup Property, Port of Tacoma WA

Hylebos Waterway NRDA Allocation References

Sorted by Reference ID

Ref. ID

309 U.S. Environmental Protection Agency. 12/1/79. The Development Document For Proposed Effluent Limitations Guidelines and Standards for the Shipbuilding and Repair Point Source Category (EPA 44/1-79/076-b, 1979)

310 Unknown. 6/23/00. Mercury Arc Rectifiers, http://www.netcomuk.co.uk/~wwl/mercarc.html

311 Hawker Energy Products, Inc. 1997. Introduction to Batteries, Lead-Acid Batteries, http://www.hepi.com/basics/pb.htm

312 Michelena, Karen, et al. 5/17/93. Washington State Department of Ecology Solid and Hazardous Waste Program Inspection Report, Petroleum Reclaiming Services, Inc.

313 U.S. Environmental Protection Agency. July 1998. Final Standards Promulgated for Petroleum Refining Waste, http://www.epa.gov/epaoswer/hazwaste/id/petroleum/petro-fs.txt

314 NIOSH. 6/23/97. Literature Review of Health Effects Caused by Occupational Exposure to Asphalt Fumes, http://ntp-server.niehs.nih.gov/htdocs/Chem_Background/ExecSumm/AsphaltFumes.html

316 Backous, Bill. 1/23/87. From: Bill Backous (State of Washington Department of Ecology) to Debbie Yammamoto (U.S. Environmental Protection Agency) Re: Analysis of Clean and Waste Sandblast Material Recovered from Tacoma Boat

317 State of Washington Department of Ecology. 1/30/98. Summary of Contaminants Typically Associated with Wood Waste/Debris, State of Washington Department of Ecology Agreed Order No. DE 97TC-5437

318 Glass, Gregory L. and SAIC. 1/1/92. Baseline Risk Assessment, Ruston/North Tacoma Operable Unit Commencement Bay Nearshore/Tideflats Superfund Site, Tacoma, WA

319 State of Washington Department of Ecology. 6/29/98. Exhibit C to Agreed Order No. DE 98TC-S213, Cleanup Action Plan Joseph Simon & Sons, 1601 Taylor Way Site

320 Oberlander, Jim. 8/29/75. State of Washington Department of Ecology Inspection Report, General Metals

323 McCain, Richard J. 11/18/92. Zidell Marine Corportation Response to U.S. Environmental Protection Agency's CERCLA 104(e) Information Request RE: Commencement Bay Nearshore/Tideflats Superfund Site, Tacoma, WA

324 Hart Crowser. 11/29/88. Environmental Assessment of the Sound Refining Property, Tacoma, WA

326 Kaiser Aluminum and Chemical Corporation. February 1989. Kaiser Aluminum and Chemical Corporation - Tacoma Works Wet Scrubber Sludge Disposal Area Environmental, Safety and Security Summary Report

327 Tetra Tech, Inc. 8/1/85. Commencement Bay Nearshore/Tideflats Remedial Investigation, Volume 2

Hylebos Waterway NRDA Allocation References

Sorted by Reference ID

Ref. ID

328 Dames & Moore. January 1982. Historic Land Use Survey of the Tacoma Tideflats (prepared for State of Washington Department of Ecology)

329 Potter, Thomas L. and Kathleen E. Simmons (University of Massachusetts). May 1998. Total Petroleum Hydrocarbon Criteria Working Group Series, Volume 2, Composition of Petroleum Mixtures

330 U.S. Navy. March 1984. Navy Shipboard Hazardous Material/Hazardous Waste Training Manual

331 State of Washington Department of Ecology. 6/8/98. State of Washington Department of Ecology vs. Ace Tank and Equipment Company, Consent Decree No. 98-2-07617-3

332 Smith, Dave (State of Washington Department of Ecology). 9/30/99. Milestone 4 Source Control Status Report for Head of Hylebos Waterway Problem Area: Commencement Bay Nearshore/Tideflats Superfund Site

333 Sax, Irving N. and Richard J. Lewis, Sr. (Van Norstrand Reinhold Company Inc.). 1987. Hawley's Condensed Chemical Dictionary, Eleventh Edition