Comments
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Settlement Communication – Subject to ER 408

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Re: Comments Regarding Hylebos Waterway Natural Resource Damage Settlement Proposal

Dear Mr. Taylor:

Thank you to the Commencement Bay Natural Resource Trustees for providing the opportunity to comment on the March 14, 2002 public review draft of the Hylebos Waterway Natural Resource Damage Settlement Proposal Report ("Settlement Proposal Report"). This letter is submitted on behalf of General Metals of Tacoma, Inc. We believe the Trustees are taking a better approach to allocation by allowing comments from all interested parties rather than relying upon a privately-funded CERCLA allocation that was based primarily on advocacy pieces presented by the few parties paying for the allocation.

In this letter, we intend to provide the Trustees with additional facts that should make the Trustees' settlement matrix more complete and accurate. Whenever possible, we have attached pertinent documents supporting these facts. Based upon this information, General Metals' allocation should be reconsidered and substantially lowered. If the Trustees have any questions regarding this letter or the attached documents, please contact me at your earliest convenience. We are happy to provide clarifying information if requested.

By making comments, General Metals does not admit that it caused or is otherwise liable for any natural resource damages in the Hylebos Waterway or other parts of Commencement Bay. Nevertheless, in the spirit of pursuing settlement of disputed claims, General Metals is interested in providing this additional information to further evaluate possible settlement opportunities. The following comments are organized into two sections. First, comments I through III discuss adjustments to the Trustees' damage calculation (HEA analysis) that are based upon General Metals' site activities. Second, comments IV through VII discuss allocations relating to other parties. Third, comments VII and IX discuss differences in data interpretations.

I. DEGRADED INTERTIDAL HABITAT

The Trustees recognize that urban development may degrade habitat. The Trustees acknowledge that they are not entitled to recover damages for this type of potential injury to natural resources. In the Settlement Proposal Report, the Trustees note:

> Commencement Bay habitats have been degraded by development, physical modification, and non-hazardous pollution, among other things for which CERCLA does not authorize Trustees to recover natural resource damages. The Trustees identify two primary circumstances warranting assignment of degraded values for the Hylebos HEA: shading cast by over-water structures and habitat impairment caused by log rafting and harmful levels of wood debris accumulation.

Settlement Proposal Report, p. 9. Starting in approximately 1972, the General Metals facility used floating crane ships attached to a steel wharf/scrap metal deflector to load and unload ships along the Hylebos Waterway. The floating crane ships and steel wharf were approximately 800 feet long by 75 feet wide, covering intertidal, shallow sub-tidal, and sub-tidal areas along General Metals' shoreline. At low tide, the crane ships would often rest on the bottom. These features were removed in 1998 and replaced with a much smaller, elevated wharf (500 ft. long by 70 ft. wide) that substantially opened up this area. See Exhibit A, Drawings for Proposed Replacement Bulkhead, New Wharf & Fill, Permit No. 98-2-00516.

The crane ships and steel wharf were "over-water structures" that shaded the 800-foot intertidal and shallow subtidal areas along General Metals shoreline. In addition, the grounding of the crane ships during low tide further impacted habitat in this area.. Under the Trustees' settlement matrix, this area of General Metals' shoreline should be assigned the *degraded* designation. As a result, the natural resource damages incurred in the area of the General Metals dock are less than that calculated by the Trustees and General Metals' allocation of discounted service acre-years ("DSAYs") should be reduced.

II. HEAD OF HYLEBOS CLEANUP

The Trustees' estimate of damages is based in part on the areas the Trustees assumed would be remediated. The Trustees' settlement matrix used EPA's 2000 Explanation of Significant Differences (2000 ESD) to define the areas to be remediated, areas left to naturally recover, and areas requiring no action. General Metals and ATOFINA Chemicals, Inc. have agreed to remediate their entire area of the Hylebos Waterway, leaving no natural recovery areas and no areas unremediated. See Exhibit B, Remedial Design Work Plan, Head of Hylebos Waterway, by Dalton, Olmsted & Fuglevand, Inc. (April 25, 2002). Under the Workplan, dredging will occur from the bayward side of the upper turning basin to the bayward side of the middle turning basin, with shoreline caps beneath General Metals' dock (completed) and ATOFINA's dock (to be completed). See Exhibit B, Figure 1-1. General Metals and ATOFINA will therefore be actively remediating a much larger area than the Trustees assume in their settlement matrix. Based on this more complete cleanup and shorter time to recovery for the areas designated as natural recovery areas, the actual damages will be less than that calculated by the Trustees. As a result, the natural resource damages incurred in Segments 1 and 2 are less than that calculated by the Trustees and both General Metals and ATOFINA should receive reduced DSAY allocations

because they will perform a much greater cleanup than assumed by the Trustees and required under the 2000 ESD.

III. PREVIOUSLY COMPLETED SHORELINE CLEANUPS

The Trustees' estimate of damages did not account for potential habitat areas that have already been remediated. The owners of at least five Hylebos waterfront properties have completed shoreline cleanups involving intertidal and shallow subtidal areas. These cleanups include significant portions of the General Metals shoreline, the Tacoma Boat dock area and boat ramp, U.S.G. Interior's shoreline, Don Oline's shoreline and adjacent upland, and the Murray Pacific intertidal area and log haul-out ramp. In all of these areas, the Trustees' damage calculations currently assume that contamination is still present and that natural resource damages are continuing to occur. With these cleanups completed, however, the contamination is no longer causing damages to ecological receptors and recovery toward fully functioning habitats is underway. The Trustees should account for these cleanups in their damage calculations which will result in reduced DSAYs.

General Metals

In late 1998, General Metals capped its shoreline from the new sheet pile barrier to the bottom of the slope, at elevation –35 feet MLLW. The project included laying a geotextile fabric on the cleaned slope, construction of a toe berm to stabilize the existing slope, a minimum 1-foot thick gravel layer placed on top of the geotextile fabric, 1-foot to approximately 8 feet of riprap placed on top of the gravel, and a minimum of 6-inches of "fish mix" rock placed on the rip rap extending from the base of the bulkhead downslope to an elevation of –12.5 feet. Pre-construction, post-capping, and post-construction surveys were performed to document the cap thickness requirements. EPA has approved a long-term site control plan for future monitoring of the cap. This work completed cleanup of SMA 232.

Attached are the following documents relevant to General Metals' capping project: Exhibit C, October 13, 1998 letter from Lori L. Houck enclosing Administrative Order on Consent for Removal Action Re: Intertidal Sediments, EPA Docket No. 10-98-0133-CERCLA with statement of work; Exhibit D, Final Report – Schnitzer Steel Wharf Sediment Cap Construction Observations and Acceptance, by BERGER/ABAM Engineers, Inc. (March 2, 1999); Exhibit E, April 17, 2000 letter from Peter Contreras (EPA Remedial Project Manager) regarding EPA's project approval.

This remediation of the intertidal, and subtidal area to –35 MLLW along General Metals' shoreline, combined with placement of "fish mix" from elevations + 13 to –12.5 MLLW created much better habitat than what previously existed. General Metals should receive a DSAY adjustment for cleanup up of its intertidal and subtidal shoreline area five years earlier than the Trustees' settlement matrix assumed, and should receive credit for enhancing the habitat through the placement of "fish mix" in important fish habitat areas.

Tacoma Boat

In the summer of 1998, Ace Tank remediated significant portions of the shoreline at the former Tacoma Boat property. Ace Tank removed sediment containing sandblast grit from the open intertidal area that parallels the dock, extending out to the 0-foot MLLW tideline at the upslope face of the pier. Ace Tank also removed sandblast grit and other materials from the boat ramp area that extended into the Hylebos Waterway. The work was performed under Washington State Department of Ecology Prospective Purchaser Consent Decree No. 98-2-07617-3, and EPA Agreement and Covenant Not to Sue No. 10-98-0063-CERCLA. Sandblast grit and sediment containing sandblast grit remain only in the subtidal area of SMA 131 beneath the dock.

Don Oline Property

In 1998, SMA 343, an intertidal area about 75 feet wide and 75 feet long, including the adjacent upland area, was remediated under Ecology Consent Decree No. 97-2-09719-9. The intertidal portion of the cleanup involved removal of approximately 475 tons of material from an elevation of 0 MLLW to +12 MLLW. The intertidal area was then refilled with "fish mix" approved by the Department of Ecology and Department of Fisheries. Riprap was placed at the end of the new bulkhead with the riprap covered with smaller rock and then fish mix. See Exhibit F, Final Report, Don Oline Auto Fluff Site, 2120 Marine View Drive, Tacoma, Washington (June 11, 1998).

U.S.G. Interiors

In 1997, U.S.G. Interiors remediated SMA 241, an isolated intertidal area approximately 25 feet wide and 200 feet long. The work was accomplished under Department of Ecology Agreed Order No. DE93TC-S163. The work involved removing upland bank soils and intertidal slope sediments to –5 MLLW. The bank and intertidal areas were then reconstructed using a multi-layered system of a Gabion mattress over a geotextile fabric, over a sand layer, over another geotextile. EPA requested that additional material be removed in order to comply with ROD cleanup criteria. After additional material was removed in 1998, EPA and Ecology approved the USG cleanup in 1999. See Bank Cleanup and Restoration, USG Interiors, Inc., 2301 Taylor Way, Tacoma, WA, by AGI Technologies (1997).

Murray Pacific

In 1996, Murray Pacific remediated upland and bank areas at SMA 342 under Ecology Consent Decree No. 95-2-12876-4. The cleanup extended in some areas to elevation 0 MLLW. See Final Engineering Report, Murray Pacific Logs Sort Yard No. 1 Remediation, Tacoma, WA, by Hydrometrics, Inc. (December 30, 1996).

See also, Exhibit G, Hylebos Waterway Pre-Remedial Design Evaluation Report (November 8, 1999) for a summary of all of the shoreline cleanups performed along the waterway.

The Trustees natural resource damage calculation should account for these intertidal and subtidal shoreline cleanups completed several years before the assumed 2003 remediation date. The total number of DSAYs should be adjusted downward to account for earlier cleanup, particularly of the intertidal areas.

IV. PCB ALLOCATION TO ATOFINA

General Metals maintains that the primary source of PCBs found in the Head of Hylebos Waterway emanated from operations by predecessors to ATOFINA Chemicals, Inc.

ATOFINA's Discharge of PCBs: ATOFINA Chemicals, Inc., formerly Elf Atochem and Pennwalt Corp. (collectively "ATOFINA"), has had significant PCB releases over the 80 years of its operation. It appears that both the private CERCLA allocation report (TLI Report) and the Trustees' Settlement Proposal Report did not contain information from EPA's Toxic Substances Control Act (TSCA) files. These files noted significant quantities of PCB-containing equipment on the ATOFINA (and other Hylebos PRPs') site. See Exhibit H, portions of the ATOFINA TSCA file. In particular, TSCA records show that ATOFINA disposed of over 30 tons of PCB wastes in a two month period in 1986. Another 500 gallons of PCB liquid was disposed of from the ATOFINA property in 1987. The TSCA files also note at least 14 PCB transformers on the site with most of them being located outdoors on the ground. PCB contents in the transformers were as high as 318 ppm and at least seven of the transformers contained over 1,000 gallons of PCB oil. The TSCA files note an outdoor PCB transformer with 4,796 gallons of oil with PCB content of 124 ppm.

The presence of these large quantities of PCB transformers and capacitors have resulted in PCB releases on and from the ATOFINA site. These releases have been documented in several sampling events on and adjacent to the ATOFINA site. In April 1985, the Washington Department of Ecology took three soil samples from the plant property. PCBs were found in all three samples ranging from 8,700 ppb to over 11,600 ppb (in the area identified as the "cell room transformer"). See Exhibit I, April 16, 1985 Department of Ecology Memo from Mike Schlender, Chemist, to Tom Eaton, entitled "PCB Analysis of Penwalt [sic] Soil Samples."

In April 1988, Ecology looked at Hylebos receiving waters at the east end and west end of Pennwalt's outfall. Ecology found PCB concentrations of 6,600 ppb at the east end sample and 3,530 ppb at the west end sample. See Exhibit J, portions of the April 5-6, 1988 Class II Inspection by Department of Ecology at Pennwalt Facility.

The relative significance of these PCB releases from ATOFINA is demonstrated by considering the PCB data for the Middle Turning Basin. There is a clear PCB concentration gradient emanating out from the ATOFINA site. Figure 1 in Exhibit K illustrates the reduction in PCB concentration with greater distances from the ATOFINA shoreline. This gradient is a clear indicator of the ATOFINA site being the primary source of PCBs in the Middle Turning Basin.

From all these materials, it is apparent that the concentrations of PCBs in sediments are highest near ATOFINA's plant sewer outfalls. Comparing this data with the sediment sampling data at or near General Metals, where "natural recovery areas" comprise General Metals' graving slip and the subtidal area immediately offshore of General Metals' dock, results in the conclusion that the PCB concentration gradient extends from ATOFINA's sewer outfalls into the Middle Turning Basin and not from General Metals. General Metals was not a significant source of PCBs to the waterway.

Periodic maintenance dredging by General Metals would not have affected this concentration gradient analysis, any more than periodic dredging done at ATOFINA or other Hylebos locations would have remediated those areas. Furthermore, the graving slip at General Metals (an ESD-designated Natural Recovery Area) has not been dredged since its original excavation in the 1970s. If General Metals was a significant source of PCBs to waterway sediments, the graving slip sediments would have been more highly contaminated (which they are not).

Correlation with Chlorinated Pesticides: The case for ATOFINA being the primary source of PCBs in the Middle Turning Basin is also illustrated by considering the distribution and relative concentrations of chlorinated pesticides in the Middle Turning Basin sediment. Packaging and repackaging of DDT was performed on the ATOFINA site and releases of these contaminants appear to have occurred through the historic sewer discharges near the ATOFINA dock. The release of chlorinated pesticides is unique to only two sites in the waterway, as reflected by the Trustees' Settlement Proposal Report which identifies the Occidental site (in Segment 5) and the ATOFINA site as where releases of chlorinated pesticides occurred. The two primary footprints for these contaminants are located directly offshore from these two properties. The presence and distribution of chlorinated pesticides in the head area of the waterway reflects the fate and transport of chlorinated pesticides released from the ATOFINA site. Figure 2 in Exhibit K is consistent with this conclusion as it shows that relatively high concentrations of chlorinated pesticides are limited to the area near the ATOFINA sewer outfalls immediately adjacent to the ATOFINA site. High concentrations were not observed in sediments distant from the ATOFINA site.

Chlorinated pesticides and PCBs have somewhat similar fate and transport characteristics. They are both relatively insoluble, adhere to soil particles, and are persistent in the environment. Thus, if released from the same area, the relative concentrations and distribution of PCBs and chlorinated pesticides would be similar. In the Middle Turning Basin, the relative concentrations and distribution of PCBs and chlorinated pesticides are very similar. Figure 3 in Exhibit K shows the close relationship between PCB and chlorinated pesticide concentrations in the Middle Turing Basin. The measured concentrations of PCB and chlorinated pesticides in the same sediment samples were ranked in order for both contaminants. Figure 3 shows that those samples that had relatively high chlorinated pesticide concentrations also had relatively high PCB concentrations. This relationship and the similar fate and transport behavior of PCBs and pesticides indicates that the release source of the PCBs is the same as for the pesticides. Thus, the PCB and chlorinated pesticide concentration relationship indicates that PCBs present in the Middle Turning Basin were released primarily from the ATOFINA site.

V. ALLOCATION TO KAISER

General Metals maintains that Kaiser Aluminum and Chemical Corporation was a major polluter of the Hylebos Waterway.

Kaiser's Discharge of PCB's: The TSCA file on Kaiser was also enlightening as to Kaiser's historic PCB electrical equipment and releases. Over the years, Kaiser had leaking transformers on its property and had a

significant PCB-contaminated oil release in December 1986. Kaiser's Outfall No. 1 to the Hylebos discharged groundwater and stormwater collected from the vicinity of its PCB-containing rectifier as well as other industrial operations. See Exhibit L, EPA NPDES Outfall Location form for Kaiser, p.1, Outfall 001. Kaiser noted the gravel in its rectifier yard (from which groundwater and stormwater was directed to the oil/water separator before discharge through Outfall 001 to the Hylebos) was contaminated with PCBs. One sample of the gravel in March 1985 reported 19,000 ppb of PCBs. See Exhibit M, April 21, 9186 letter from Paul F. Schmeil, Staff Environmental Engineer for Kaiser. On December 19, 1986, Kaiser lost up to 3,000 gallons of transformer fluid containing between 10,000 and 15,000 ppb PCBs. Drainage from this area again was to the oil water separator which, in turn, discharged to the Hylebos through Outfall 001. See Exhibit N, "PCB Leak Cleanup Plan," by Landau Associates (January 26, 1987). Sampling conducted in conjunction with this PCB spill found PCBs in the sump at the rectifier building and in many other areas. See Exhibit O, "PCB Spill Sample Log."

Kaiser historically had numerous PCB-containing electrical equipment items at its property. As late as April 27, 1988, Kaiser was disposing of PCB transformers with PCB concentrations ranging between 113 ppm to 313 ppm. See Exhibit P, April 27, 1998 letter from Eastern Electric Corporation to Kaiser. By July, 1992, Kaiser was reporting that only one PCB transformer remained at its facility, but that it contained 2405 ppm PCBs. See Exhibit Q, July 7, 1992 letter from R.C. Schutz, Kaiser Works Manager. Furthermore, as of December 4, 1992, Kaiser reported having a large number of PCB contaminated electrical equipment items at its plant. The vast majority of this equipment contained part per million concentrations of PCBs. See Exhibit R, "Inventory of PCB, PCB-Contaminated, and Non-PCB Items," by Kaiser (04-Dec-92).

Kaiser's PAH Discharges to the Middle Turning Basin: From the late 1940s to the early 1970s, Kaiser accumulated large amounts of "wet scrubber sludge" containing high levels of PAHs (concentrations on the order of 1 to 5 percent PAHs were reported). Kaiser historically dumped these sludges into a settling pond on its property. The pond decanted this liquid to the Kaiser ditch. Until the late 1950s or early 1960s, the Kaiser ditch, in turn, discharged to Hylebos Creek which emptied directly into what is now the Middle Turning Basin. See Exhibit S, photograph of the Kaiser Ditch dumping a sudsy fluid into Hylebos Creek, and then into the Middle Turning Basin. Kaiser previously claimed it was not responsible for any contamination in the Middle Turning Basin because the Middle Turning Basin was maintenance dredged in the early 1960s. Yet, the techniques used for maintenance dredging during that time period, and even to today, are not sufficient to remove contaminants adhered to the silty sediments found in the Hylebos Waterway. Kaiser's discharges migrated directly to the Middle Turning Basin through Hylebos Creek and should result in Kaiser receiving a much higher allocation than that given to it by the Trustees.

EPA Rejected Kaiser's "De Minimis" Arguments: During the past year, Kaiser has attempted through numerous submissions to convince EPA that it should be considered a "de minimis" party for settlement purposes. Through repeated meetings and briefings with EPA, Kaiser claimed that its chemical discharges to the Hylebos were minimal. EPA independently reviewed the information provided by Kaiser and flatly rejected it. By letter dated August 24, 2001 (Exhibit T), EPA advised Kaiser that it considers Kaiser to be a major contributor and one of the parties who should perform the Hylebos cleanup.

VI. OTHER PCB AND PAH SOURCES

Sites with No PCB Share: Many properties along the Hylebos received no PCB allocation share even though the properties historically conducted operations that were consistent with PCB usage yet were never tested (or only minimally tested) for PCBs. These properties should bear some allocation for PCBs.

Industrial and Commercial Properties: Several sites which have documented activities associated with PCBs were not allocated any share of the PCB damages. PCB shares apparently were not allocated to these sites because several known PCB-related activities were not included on Settlement Proposal Report Figure 3-4 (Activity Ratings for PCBs and PAHs). Numerous industrial activities and products associated with PCBs are not included on Figure 3-4. These include:

- Paints (in particular, rubberized marine paints)
- Hydraulic oils
- Wool insulation
- Adhesives
- HVAC gaskets
- Cutting oils

References including the Federal Register, an EPA publication, proceedings from an international conference, and a book document these materials as containing PCBs. These references are attached as Exhibit U.

Table 1 below lists those sites that have not been allocated any PCB share even though activities and materials associated with PCBs have been documented on the site and very little to no testing for PCBs has been performed. These sites where suspect activities took place should not be allowed to escape any allocation of PCB shares based solely on the lack of sampling for PCBs conducted at the sites.

Table 1
Sites with No PCB Share Allocation

Site	Map Reference	Activities Associated with PCBs	PCB Testing?	Reference(s)
Wasser Winter	1	Hydraulic oil and lubricating oil associated with log handing equipment.	No	Trustee documents
Nordlund Properties	2	Hydraulic oil in boat lifts. Paint releases from pressure washing boats.	No	Trustee documents
Streich Brothers	3	Machine shop cutting oils, waste oil, sheen on oil/water separator effluent. Hydraulic oil release on ground. Unsampled transformers on site presumed to contain PCBs.	No	Ecology UBAT Inspection. Trustee documents
1670 Marine View Drive	4	Hydraulic oil and lubricating oil associated with possible log handing equipment.	No	Trustee documents
Jones & Goodell Boatbuilding	5	Paint releases from sandblasting of boats.	No	UBAT report. Trustee documents.
Manke Lumber	6	Hydraulic oil release. TLI report noted capacitors and transformers on site.	No	Trustee documents. TLI report.
Tacoma Boatbuilding	7	Waste hydraulic oil. Paint releases from sandblasting of boats. Trustee table notes PCBs from shop maintenance. Cutting oil.	Yes. Detected.	Trustee documents.
B&L Wood Waste Landfill	8	ASR noted on site. Received wood waste from log yards where hydraulic equipment operated and likely leaked.	No.	Trustee documents.
US Gypsum Landfill	9	General landfill wastes. Likely off-spec wool insulation.	No.	Trustee documents.
Weyerhaeuser	10	Hydraulic oil releases from log handling and debarking equipment. Truck and equipment washing runoff. TLI report notes PCB transformers on site.	One storm water sample ND	UBAT report. Trustee documents. TLI report.
Lone Star	11	Hydraulic oil in asphalt and concrete plant equipment.	No	Trustee documents.
Louisiana Pacific	12	Hydraulic oil release.	No.	Trustee documents.
Ohio Ferrous Alloy – POT	13	PCB-containing electrical equipment.	No	HCC Summary of Existing Information. Sanborn Maps.
Oline Properties/Hylebos Marina	17/22	Hydraulic oil in boat lifts. Paint releases from pressure washing and painting boats. Waste oil.	No.	Historical aerial photographs. UBAT reports.
US Gypsum	18	Union Carbide produced rock wool insulation for "War Effort".	No.	City of Tacoma inspection report.
Dunlap Towing	20	Hydraulic oil releases	No.	Trustee documents.
Jones Chemical	101	ASR storage on site	Yes. Detected.	UBAT report.
Stone Investments	25	Boat painting and washing. Waste oil.	Yes. ND in two samples	UBAT reports.

Cascade Timber	27	Likely hydraulic log handling equipment.	No.	Trustee documents. UBAT reports.
Murray Pacific	29	Likely hydraulic log handling equipment.	Yes. PCBs in storm drain sediment.	3/87 Ecology sample report. Trustee documents.

Sites with No PAH Share: Similarly, several sites with historic activities consistent with generating PAHs received no PAH share despite little or no sampling being conducted on those properties for PAHs.

Several properties were not assigned any share of PAH damages even though activities clearly associated with PAH releases occurred on the property. Review of information sources not considered by the Trustees (namely historical aerial photographs) document that PAH-related activities occurred on these sites. Therefore, these sites should be allocated some PAH share. These properties include:

Hylebos Marina Boat Storage/Maintenance: Based on historical aerial photographs, the Hylebos Marina property has been used for boat cleaning and maintenance since the mid 1940s. Large numbers of small boats have been stored in uncovered areas on bare ground since the mid 1980s. Boat cleaning and maintenance has been performed in these areas for many years. Incidental drippage and spills of lubricating oil and fuels have certainly occurred and with the close proximity to the bank, have been transported to the waterway. A 1992 Ecology UBAT inspection report noted containers of waste oil in jugs sitting on the site and paint residue on bare ground. Photographs attached to a September 1993 Ecology inspection report showed oil staining on bare ground, poor housekeeping of petroleum products and wastes, and stained soil beneath uncontained above-ground oil storage tank.

Jones Chemical: Historical aerial photographs show structures and activities on this property since 1970. Vehicles associated with Jones Chemical's activities would have had incidental drips and leaks of oil and fuel. Consistent with almost all urban developed properties, runoff would likely have contained PAHs resulting from runoff of the oil and fuels. Although the Trustee documentation noted the presence of ASR on Jones Chemical's property, and Figure 3-4 of the Settlement Report notes that ASR is associated with PAHs, no share of PAHs was assigned to this property.

U.S. Gypsum Landfill: This site received general manufacturing wastes throughout the 1970s. According to November 1983 Dames & Moore report, the site received, among other wastes, asphalt coated paper. Other wastes with petroleum hydrocarbons and associated PAHs were also likely placed in the landfill. This site drains directly to Hylebos Creek.

Cascade Timber: Aerial photographs show this site was developed and material was stored on the site as early as 1961. A February 14, 1992 inspection by Ecology noted a leaking drum of oily liquid on the site. Drips and spills of lubricating oil, fuel oil, and hydraulic oil will invariably occur from log handling equipment. Given these various sources and duration of operation, releases of PAHs to the waterway most likely occurred.

Trustees Did Not Consider Air Discharges

Based on the activities listed on Figure 3-4, it appears that the Trustees considered releases to the soil, groundwater, and surface water as the primary release and migration mechanisms for the PAHs in the waterway sediment. The nature of the activities listed indicates that releases to and

migration through the air was not considered in identifying sources of PAHs in the waterway sediment.

There are many industrial activities that result in significant releases of PAHs to the air. Activities occurring on several properties indicate that they likely discharged PAHs to the Hylebos Waterway through the air. Specific sources that emit PAHs to the air are described in a July 1998 EPA publication, "Locating and Estimating Air Emissions from Sources of Polycyclic Organic Matter". The cover page of this document is attached as Exhibit V.

This document notes several activities that are not included on Figure 3-4, but were performed at several of the properties along the Hylebos waterway. These activities and associated properties are summarized in Table 2 below.

Table 2

Hylebos Properties with PAH Air Discharges

EPA-Identified Source/Activity	Hylebos Site with Identified Source/Activity
Wood/Oil Combustion – Boilers and Heaters	Murray Pacific US Gypsum ATOFINA
Aluminum Smelters	Kaiser
Ferro-alloy producers	Port of Tacoma 3002 Taylor Way
Hot mix asphalt plants	Lone Star

Copies of aerial photographs showing visible air emissions from these properties are attached as Exhibit W. It is apparent that the air contaminant pathway was not considered for PAH releases because of the very low PAH shares that several of the properties noted in Table 2 were assigned.

PAHs and PCBs in Urban Runoff

No share of the PAH or PCB damages has been allocated to the City of Tacoma for the street runoff that is discharged to the Hylebos. PAHs and PCBs are ubiquitous in urban environments and present in street runoff in residential, commercial, and industrial areas. See National Research Council Report: ***Oil in the Sea: Inputs, Fates and Effects, at*** http://bob.nap.edu/books/0309084385/html/.1("NRC Report"). In particular, runoff to the waterway through the City of Tacoma Buffelen Ditch should have some PCB and PAH share given the PAHs and PCBs commonly present in urban storm water runoff. Although the concentration of PAHs and PCBs may be small in the runoff (even below typical detection

limits) the mass of runoff is typically very large resulting in a significant PAH and PCB mass loading to the water way and sediments.

Runoff of PCBs and especially PAHs should also be acknowledged and allocated for numerous sites located along Hylebos Creek. The creek drains a significant area and large volumes of runoff containing low concentrations of contaminants result in significant contaminant mass loading into the waterway. Similarly, an outfall discharging to the Middle Turning Basin drains a large residential area north of the waterway. As noted above, PCBs and PAHs are commonly present in urban, even residential, street runoff.

The Trustee allocation also did not consider the significant mass of PAHs that are discharged directly to the waterway from ships and boats through exhaust and cooling water discharge. See NRC Report.

VII. RESTORATION AND RECOVERY TIMEFRAMES

The Trustees have over-estimated the amount of time it will take for remediated areas to become productive habitat and for constructed habitat areas to become fully productive. The Trustees' settlement matrix includes assumptions that remediated areas of the Waterway will take 10 years to recover to fully functioning levels. The Trustees' also assumed that constructed replacement habitat would take eight years to develop to fully functioning levels. The Trustees further assumed that the recovery or restoration will occur at a constant rate over these years. The Settlement Proposal Report states:

> Once the remediation is completed, the Trustees assume that ecological services provided by the affected area will increase at a constant rate until the area produces the services it would otherwise produce but for the contamination. The Trustees assume that the sediment remediation in the Hylebos Waterway will be completed in 2003. For purposes of this settlement proposal, the Trustees assume that areas subject to active remediation will recover to full service levels 10 years after remediation, and that areas subject to natural recovery will take 25 years to recover.

Settlement Proposal Report, p. 13. The documented experience in Commencement Bay, however, shows that recovery occurs at a much faster rate than that assumed by the Trustees. The Trustees' own report, Determining Habitat Value and Time to Sustain Function, by Nicholas E. Iadanza (September 11, 2001) and attached to the Settlement Proposal Report as Appendix C, states:

> Monitoring data from restoration projects in the Puget Sound area indicate that habitat functions associated with intertidal and subtidal sand/silt and gravel/cobble substrates **develop rapidly**. . . . Some sites showed rapid development of a diverse and abundant assemblage of benthic and epibenthic

> organisms, **achieving within 50-100% of their long-term trends within 1-2 years** after construction (e.g. Milwaukee Habitat Area (Parametrix, 1998)), . . . Although the numbers of epibenthic invertebrates were often highly variable from year to year, by years 3-4, benthic and epibenthic production at many restoration sites in the Puget Sound area approach long-term production levels and a population structure and taxa richness comparable to referenced areas. Therefore, for a newly created habitat, **4 years is assumed to be an appropriate time to reach sustained value for baseline adjusted intertidal and shallow subtidal habitat** (0.75 and 0.55, respectively).

Appendix C, p. 11 (emphasis added).

The vast majority of habitat in the Hylebos Waterway is subtidal. Upon remediation, the intertidal habitat and shallow subtidal habitat would classify as "baseline adjusted" lower quality habitat under the Trustees' settlement matrix. These are the exact types of habitats that Mr. Iadanza acknowledges recover very rapidly – mostly within the first 1-2 years, and reaching "sustained value" within four years, not ten.

For the Trustees, Mr. Iadanza further writes:

> The Gog-Li-Hi-Te wetland system, created in 1986, included a mix of upland and wetland habitats. A 5-year monitoring report (Thom, et al., 1991) shows that upland trees increased from 725 m^2 to approximately 1500 m^2. The data also showed that the transitional zone between the intertidal and upland habitats was rapidly colonized by willow and alder, which increased from 0.4% of the area (160 m^2) in 1986, to approximately 4.3% (1,650 m^2) in 1990. The riparian vegetation increases are from natural recovery, as planting of these species does not appear to have been included in the project design. . . .
>
> Information from the mitigation monitoring guidelines suggest that significant growth and coverage in vegetated buffer areas can be achieved in 5 years. Data from the Gog-Li-Hi-Te wetland site show significant increases in riparian vegetative growth within 5 years. Data from the Coastal America Sites show development of riparian vegetation – associated insect production within 5 years. Mitigation monitoring guidelines specific to Washington indicate that 90% herbaceous cover may be expected by year 5.

Settlement Proposal Report, Appendix C, p. 14.

For dredged or capped areas of the Hylebos Waterway, this data indicates benthic and epibenthic communities recolonize over a 1-2 year time frame. Other ecological services are established by

5 years. This is not, however, a constant or "straight-line" progression. The Gog-Li-Hi-Te and Milwaukee projects, cited by Mr. Iadanza, document that restoration time frames occur much earlier than the 8-10 years and occur at an early accelerated rate, not the "constant rate" assumed by the Trustees.

Furthermore, the Trustees assumed that due to the presence of natural recovery areas, post-remediation recovery would be delayed because of remaining chemical contaminants. The Trustees wrote:

> In addition, for some time after remediation, there will remain areas in the waterway with contaminant concentrations below levels triggering active cleanup but still high enough to produce natural resource injuries. Due to the constant resuspension and stirring of sediments that occurs in this active waterway, the Trustees assume that organisms in dredged areas will continue to be exposed to contaminants for some time after remediation is complete.

Settlement Proposal Report, p. 13, n.3. For the Head of Hylebos cleanup project, however, all of the areas in the Head of Hylebos remediation project will be dredged to native sediment and chemical contaminants will not remain behind, resulting in lesser damages than the Trustees have stated.

In conclusion, from the Trustees' own evaluation, for both remediated areas and constructed replacement habitat, it is more accurate to assume restoration timeframes of five years, with most of the restoration occurring within the first two years. It is not accurate to assume 10 year and 8 year "constant rate" recovery periods for remediated and constructed habitats, respectively. Using a more site-specific, shorter recovery time frame will reduce the total DSAY damages calculated for the waterway.

VIII. TRUSTEES' "ADJUSTMENT FACTOR"

The Trustees have compared their sediment sampling data with data collected by the Hylebos Cleanup Committee (HCC) and declared that for purposes of calculating natural resource damages, the HCC data should be inflated by up to two times the reported concentrations. Yet the HCC laboratory data is of much better quality than the data produced by the Trustees and if any data is of questionable quality (and subject to an "adjustment factor") it is the Trustees' data.

The Trustees performed sediment sampling in the Hylebos Waterway in 1993. The Hylebos Cleanup Committee (HCC) performed more comprehensive sediment sampling in 1995 and 1996. The Trustees' used different analytical methods and the data looked in part at different things, such as PCB congeners rather than PCB aroclor patterns. In addition, the Trustees' data and HCC data were not collected in identical locations and were not synchronous – the samples were collected two to three years apart.

The Trustees, however, have assumed that the HCC data is biased low, and have adjusted the chemical concentrations reported by the HCC upward for a variety of substances. For example, the Trustees have increased the HCC's reported PAH concentrations 100% (doubling the PAH values), and increased the PCB concentrations 70%. These adjustment factors are based on a statistical comparison of the paired data points as described in the Addendum to Appendix D. The "statistical" analysis performed by the Trustees, however, is seriously flawed and does not justify the adjustment factors used. See Exhibit X, June 13, 2002 Memorandum prepared by statistics expert Bruce Peterson, who discusses the specific flaws of the Trustees' analysis.

Notwithstanding the flawed statistical analysis, there is no basis to question the quality and representativeness of the HCC data while there are significant questions regarding the quality of the Trustee data. The HCC followed rigorous quality assurance and quality control (QA/QC) procedures that met all EPA protocols. The HCC data was thoroughly validated and approved by EPA. The validated HCC data sets are not biased in any respect and are not subject to challenge regarding the accuracy of the data. On the other hand, concerns regarding the accuracy of the Trustees' data were raised by the HCC as early as June 1996 (see Hylebos Cleanup Committee Responses to NOAA Comments: Comments on the Draft Event 1A and 1B Data Report for the Pre-Remedial Design; Hylebos Waterway (12/21/95) (June 3, 1996), and Hylebos Cleanup Committee Responses to EPA Comments: Technical Review of Revised (21 December 1995) Draft Event 1A and 1B Data Report – Hylebos Waterway Pre-Remedial Design Program (June 3, 1996).

In particular, the comparison of the Trustees' results to NIST reference material showed that the Trustees' data exceed the 95 percent UCL for many of the PAHs and there were no reference material results with concentrations less than the 95 percent UCL.

Another example of the questionable nature of the Trustees' data is illustrated by the Trustees' consideration of surrogate recoveries. As stated in the Addendum to Appendix D of the Settlement Proposal Report, "... the NWFSC chemists corrected analytical results when quality control tests showed less than full recovery of reference material surrogate recovery analysis." Although it is not clear what this statement means, it infers that sample results with surrogate recoveries of less than 100 percent were adjusted upward in proportion to the amount of recovery less than 100 percent. If this is true, this would be a highly unusual and nonstandard data manipulation method. Standard practice is if the sample surrogate recoveries are within the QA/QC limits (as defined by EPA protocols), the data results are accepted as reported. If the surrogate recoveries are less than the QA/QC limits, the data are flagged as an estimate or rejected. It is not typical practice to adjust the reported results to "fit" the surrogate recoveries.

All of this suggests that it is the Trustees' data that is questionable and likely biased high. The Trustees should modify their settlement matrix to include the validated HCC sediment sampling

data as reported and accepted by EPA, not arbitrarily biased upward by the Trustees. Furthermore, the Trustees should review the QA/QC for their data and reconsider if their data is appropriate to be used in the calculation of natural resource damages.

IX. TRUSTEES' ASSUMED PCB/PAH DISTRIBUTION

As part of the allocation process for PAHs and PCBs, the Trustees have assumed that these contaminants, once released from a site, are distributed in a symmetric pattern around the release point. The Trustees used the distribution of specific contaminants they believe originate uniquely from a specific segment as the basis of their analysis. Using only the data from the 1985 Remedial Investigation report, the Trustees make numerous simplifying assumptions to estimate how a contaminant will distribute around the waterway once released from a site. The calculations for this process are presented only for total chlorinated butadienes. The calculations are not shown for HPAHs and arsenic, but the report states that the results for these contaminants was considered when selecting the final estimated distribution percentages.

We recognize the Trustees' need to account for contaminant distribution in the waterway in allocating responsibility for natural resource damages among various waterway segments. We also understand that detailed analysis of the fate and transport of every contaminant was well beyond the scope of the Trustees' settlement report. However, the Trustees may not have considered current studies that have been performed in the Hylebos and that provide valuable insight into how sediment moves around the waterway. These studies reduce the need for the many, often inaccurate, simplifications in the Trustees' analysis.

There are least two studies of the Hylebos currents that have been performed and are available in the public record. Boateng Environmental Scientists performed a study in 1995 along the entire waterway and Floyd & Snider performed a current study in 1998 in Segments 1, 2, and 3. The cover pages of these studies are attached as Exhibit Y. Both of these studies document an asymmetric and varying combination of current and tidal flow. Although the flow directions and magnitudes varied with depth and time, some consistent trends were observed. The net flow direction along the bottom of the waterway in Segments 1, 2, and 3 was consistently toward the head of the waterway. The Floyd & Snider study noted that the strength of these currents diminished closer to the head of the waterway.

Based on these studies, the distribution of PAHs and PCBs in the Trustees analysis should not be symmetric. Sediment and any absorbed contamination on the waterway bottom will move generally toward the head with very little net movement toward the mouth. Thus, the proportion of contaminant mass that leaves the segment in which it is released would be greater towards the head than towards the mouth. The distribution percentages used by the Trustees in their PAH and PCB allocation analysis should be revised to assign a greater percentage of the contaminant distribution toward the head than toward the mouth. We suggest that based upon these studies, a

more accurate distribution percentage would be 80% to the reference segment, 5% to the mouth-ward segment, and 15% to the head-ward segment.

Sincerely,

WILLIAMS, KASTNER & GIBBS PLLC

Mark M. Myers

Enclosures

cc: Tom Zelenka
Mat Cusma

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From Mark M. Myers

Williams, Kastner & Gibbs PLLC