

### Meeting Summary and Next Steps

This memorandum provides a summary of the Elliott Bay/Duwamish River Regional Background workshop held on September 3, 2013 at EPA Region 10 in Seattle, WA. Included are:

- A high-level summary of the meeting with significant take-home messages.
- Ecology's anticipated modifications to its technical approach to determining regional background based on the workshop and comments received for this and other bays.
- An update on program priorities for regional background determined by Ecology management in September/October, 2013.
- Next steps for Elliott Bay/Duwamish River as well as other bays.

Attachments to the summary above include:

- The agenda for the workshop.
- A list of the workshop attendees.
- Detailed comments from the workshop participants on the alternatives for setting regional background for Elliott Bay and the Duwamish River.
- Materials sent out before the workshop.

All of the above materials, including the PowerPoint presentations from the workshop and written comments received from stakeholders after the meeting, can be found on Ecology's website at [http://www.ecy.wa.gov/programs/tcp/smu/sed\\_standards.htm](http://www.ecy.wa.gov/programs/tcp/smu/sed_standards.htm)

### High-Level Summary

The morning was an information sharing session to inform development of a conceptual site model that would, in turn, inform development of the draft sampling and analysis plan. The morning session was organized as follows:

- Ecology presented the goals of the meeting, the definition of regional background (RB), a history of the studies that have been conducted in Elliott Bay including sediment chemistry data as well as sediment transport, hydrodynamic modeling, and recontamination studies.
- King County presented their modeling efforts for their combined sewer overflows and stormwater outfalls.
- LDWG presented their modeling studies for the Lower Duwamish River.
- USGS presented the Green River suspended and bedded sediment sampling results to date.

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Major themes from the morning sessions included:

- The definition of RB is flexible enough to include some influence of sources (which can include legacy contamination), but they cannot be the primary influence. Ecology needs to more clearly communicate the definition of RB, how it differs from the potential for recontamination, and how the RB definition is being used in each bay to determine where and how to sample.
- For Elliott Bay, the following geographic trends in sediment chemistry were observed based on existing data:
  - Grain size decreased and TOC was similar moving from the Puget Sound basin (offshore) to nearshore.
  - Metals showed few discernible trends from offshore to nearshore.
  - Organics (PAHs, PCBs, dioxins/furans, phthalates) tended to increase from offshore to nearshore.
- Studies of the Seattle waterfront indicate weak and variable currents dominated by the ferries and other vessel traffic. There is very little deposition from the fines that exit the Duwamish River. Certain CSO outfalls have been and may continue to be potential sources of recontamination to their immediate areas. Substantial legacy contamination still exists that would complicate cleanup, given its redistribution over large areas by prop wash and construction activities.
- Outfall modeling in the Lower Duwamish has shown that the depositional zone (where contaminants deposit to sediment) is within 100 feet of the outfall, but only a small load of contaminants deposit within this zone. The rest make their way downstream and to outer Puget Sound.
- The LDW model has the potential to be used to evaluate RB in Elliott Bay and/or the Lower Duwamish, given the large amount of data collected and the number of model scenarios previously evaluated. It may be both labor and data intensive and would need to determine how to account for prop wash from ferries due to their major contribution to contaminant resuspension.
- USGS is in the process of collecting additional suspended particulate data that could be used to refine upstream inputs to the existing LDW model and/or as a separate line of evidence. A couple more years will likely be needed for all of these data to be collected, reported, and available.

In the afternoon, an in depth discussion was held of the proposed alternatives for determining RB in both Elliott Bay and the Duwamish River developed by Ecology based on internal discussions and phone interviews prior to the meeting.

Alternatives for Elliott Bay:

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- There was general agreement that a weight of evidence approach should be used to establish RB due the widespread nature of legacy contamination. This could include a mix of bedded sediment sampling, storm drain sampling (either catch basins or in-line sediment traps), in water sediment traps, and modeling.
- Some of the existing King County models could be refined and applied in this area, as well as some of the data collected for LDW on urban sources of contaminants.
- Some thought we should establish nearshore zones that would have a different RB value, others thought there should be one value for the entire bay. Questions were also raised about whether Harbor Island RB should be different.
- There was uncertainty as to whether the current LDW models had the ability to incorporate the influence of the ferries on contaminant resuspension.

### Alternatives for the LDW:

- There was general agreement that a great deal of data has been collected and modeling conducted that could be modified and/or applied once questions about what should be included are addressed by Ecology.
- There were several concerns about timing with respect to establishing and using RB:
  - Timing of the ROD with respect to establishing RB, and how it would be used if it were developed after the ROD
  - Whether existing data on lateral sources are consistent with the definition of regional background and/or whether additional source control should be applied before RB is established
  - Ongoing USGS work that would better define upstream concentrations of particulates as inputs into the model
- Some thought establishing RB in the LDW would be useful and provide flexibility day-to-day management and operations, while others questioned the value of having RB when the cleanup levels are already established.
- Some questioned the feasibility of establishing RB in a river system and suggested that more thought needs to be given to the approaches.

### General:

- There are continuing concerns about whether RB for either Elliott Bay or the LDW would be established at a high enough value to be effective and worthwhile.
- There are continuing concerns about the overall concept of RB and implementing it as a cleanup level when natural background is not protective of human health.
- There was a suggestion that the public process for establishing RB should be similar to EPA's public outreach efforts in the LDW.

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- There were no clear opinions expressed whether Ecology should focus on Elliott Bay or the LDW, but there was general agreement that RB values for both would be different and would require separate efforts.
- There was general support for having the workshop and appreciation towards Ecology for making the effort.

### Modifications to the Technical Approach

Based on Elliott Bay/Duwamish River workshop and on comments received on the Port Gardner and Port Angeles sampling plans, Ecology has determined that some modifications to the initial procedures used to establish regional background are appropriate for some areas. Subject to discussions with stakeholders in individual bays, these modifications will be applied to Port Gardner, implemented in future SAPs as appropriate, and described in the final Sediment Cleanup User's Manual II as the work is completed. Additional modifications and site-specific approaches are expected and can be implemented as appropriate.

The following modifications are anticipated, to be further refined in individual SAPs:

- **Sampling Area.** The area in which sediment samples will be collected will be modified to better reflect the definition of regional background. This will likely entail sampling closer to the shoreline, sources, and sites, remaining outside areas of direct influence but no longer using a default distance from these areas. Instead, bay-specific information will be used, where available, to determine areas associated with depositional zones of outfalls or other point sources and areas directly affected by sites. Ecology reserves the right to use a default distance when no bay-specific, outfall-specific, or site-specific information exists to determine an appropriate distance. However, Ecology will attempt to determine an appropriate default distance through other means (e.g., data from similar bays, potential outfall modeling, etc.). PLPs and other stakeholders may have the option to provide additional data if it can be done in a timely manner. Ecology is working on a decision framework for establishing appropriate distances from sources and sites, and will include it in the revised Port Gardner SAP.
- **Other Types of Sampling.** Ecology has determined that in some instances, bedded sediment sampling may not be appropriate as the only line of evidence to establish regional background, particularly when there is significant legacy contamination present. Other circumstances may also warrant additional and/or alternative lines of evidence, such as establishing regional background in river systems. Additional types of sampling may include use of sediment traps, inline sediment traps, and/or particulate sampling. In addition, modeling may be used to identify depositional zones and/or likely contaminant concentrations in bedded sediments due to ongoing discharges and/or upstream natural and regional sources. Ecology is working on a decision framework to use when other

types of sampling and/or modeling may be appropriate, and will make it available to stakeholders when completed.

- **Rationale and “Conceptual Bay Model”.** Future SAPs (as well as the supplemental Port Gardner SAP) will contain a more complete discussion of the selected analytes, rationale and existing information informing development of the sampling area, and the rationale for the selected sampling method(s) and/or modeling approach (if used). These choices will be based on a “conceptual bay model” which will include key features of the bay that influenced these decisions, including known sites and sources, existing chemistry data, existing modeling information, hydrodynamic information, bathymetry, etc. as appropriate.

### Program Priorities and Next Steps

Based on priority sites and workload, Ecology has established the following priorities and next steps for determining regional background for bays in Puget Sound:

**1) Port Gardner.** Comments were received in 2013 on the Port Gardner sampling and analysis plan as well as the data package that included spreadsheets of the data and a Power point summary of the including statistical analyses. In addition, Ecology has taken into consideration comments received for the North Olympic Peninsula regional background work and at the Elliott Bay workshop in September 2013. As a result, Ecology has concluded that refinement of the sampling approach in Port Gardner is needed. To reflect the modifications to the technical approach described above, the supplemental sampling and analysis plan includes our consideration of the feedback received, which specifically addresses additional sampling areas closer to the shoreline and other forms of sampling. This is the highest priority for Ecology, as the work is the closest to completion and Ecology has many ongoing cleanup sites in Port Gardner. For further information on the Port Gardner regional background work, see the attached focus sheet and visit our website at:

[http://www.ecy.wa.gov/programs/tcp/sites\\_brochure/psi/everett/pg-sed.html](http://www.ecy.wa.gov/programs/tcp/sites_brochure/psi/everett/pg-sed.html)

**2) North Olympic Peninsula.** Regional background sampling has been conducted for the Port Angeles area, which included sampling in various bays in the north Olympic Peninsula. Work on determining regional background for this site will continue, coordinated through Ecology’s Southwest Regional Office. For further information and updates on this work, visit the website at: [http://www.ecy.wa.gov/programs/tcp/sites\\_brochure/portAngelesHarborSed/background.html](http://www.ecy.wa.gov/programs/tcp/sites_brochure/portAngelesHarborSed/background.html) or contact Rebecca Lawson, Section Manager.

**3) Lower Duwamish Waterway.** Ecology believes that there is value to setting regional background for the Lower Duwamish River, but that it is appropriate to wait until the USGS study is near complete and Ecology has had opportunity to further work with the stakeholders and agencies to determine how the existing models and data can be used to appropriately reflect

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the rule definition of regional background. Therefore, Ecology expects that this work will be completed before the first 5-year review under Superfund.

**4) Elliott Bay.** Ecology has no ongoing cleanups in Elliott Bay and therefore, it was determined that this bay was not as high a priority as the other areas above. Ecology will return to Elliott Bay once these other areas at some point in the future, depending on funding availability.

**5) Other Puget Sound bays.** Ecology is considering beginning regional background work in another embayment in the Puget Sound area in 2014. Please stay tuned for further announcements on which bay is selected.

Therefore, next steps for establishing regional background for bays in Puget Sound include:

- Refining the overall technical approach, including decision frameworks for selecting sampling areas and using other forms of sampling/modeling.
- Completing a SAP addendum for Port Gardner, conducting additional sampling, and completing regional background calculations.
- Continuing development of regional background for the North Olympic Peninsula through Ecology's Southwest Regional Office.
- Continuing coordination with LDW stakeholders and agencies to obtain additional information on models and inputs, work through the eventual approach to calculating regional background, and wait for completion of the USGS study.
- Beginning regional background work in another Puget Sound embayment, soon to be determined.

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### Agenda

#### Elliott Bay Regional Background Workshop Development of the Sampling and Analysis Plan

September 3, 2013

EPA Region 10 Headquarters, Room 15 NPQS  
1200 Sixth Avenue, Seattle, WA

(check in at 12<sup>th</sup> floor Service Center, contact Allison Hiltner)

<b>9:00</b>	Welcome & introductions	Chance Asher, Ecology
	Introduction, meeting goals, definition of regional background	
<b>Morning - Development of a Conceptual Site Model</b>		
<b>9:30</b>	Elliott Bay - summary of existing chemistry data	Laura Inouye, Ecology
<b>10:00</b>	Elliott Bay - summary of sediment/chemical transport processes	Teresa Michelsen, Avocet
<b>10:20</b>	Waterfront depositional zones - CSO/storm drain modeling	Jeff Stern, King County
<b>10:40</b>	<b>Break</b>	
<b>11:00</b>	Sediment & chemical transport/recontamination models	Anne Fitzpatrick, AECOM Bruce Nairn, King County
<b>11:40</b>	Green River - summary and update on particulate sampling	Kathleen Conn, USGS
<b>12:00</b>	<b>Lunch</b> - Homework: Review and discuss alternatives to prepare for afternoon discussion	
<b>Afternoon – Discussion of Potential Regional Background Sampling Alternatives (Attachment A)</b>		
<b>1:00</b>	Elliott Bay - overview of proposed sampling alternatives	Teresa Michelsen, Avocet
<b>1:15</b>	Elliott Bay - discussion of proposed sampling alternatives	Chance Asher, Ecology
<b>2:00</b>	Audience comments	
<b>2:15</b>	<b>Break</b>	
<b>2:30</b>	Duwamish River - overview of proposed sampling alternatives	Teresa Michelsen, Avocet
<b>2:45</b>	Duwamish River - discussion of proposed sampling alternatives	Chance Asher, Ecology
<b>3:30</b>	Audience comments	
<b>3:45</b>	Wrap-up, next steps	
<b>4:00</b>	Adjourn	

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### **Attendees**

Chance Asher, Dave Bradley, Laura Inouye, Mabub Alum, Andy Smith – Ecology  
Teresa Michelsen, Tim Hammermeister, Will Hafner, Lorraine Read – Ecology consultants  
Allison Hiltner, Lon Kissinger, Piper Peterson, Ravi Sanga – EPA  
Dan Baker – GeoEngineers  
Bill Bath, Gary Braun – Lockheed West and consultants  
Dan Berlin, Kathy Ketteridge – Anchor QEA  
Robert Black, Kathleen Conn – USGS  
Anne Fitzpatrick – LDWG  
Kathy Godtfredsen, Teri Floyd – Boeing consultants  
Kris Hendrickson – Landau  
Rebecca Hoff – NOAA  
Doug Hotchkiss, Kym Anderson – Port of Seattle  
Peter Leon, Rebecca Weiss – EPA consultants (West Waterway)  
Tom Newlon – Stoel Rives  
James Rasmussen – Duwamish River Cleanup Coalition  
Pete Rude, Beth Schmoyer – City of Seattle  
Erika Schaffer – DNR  
Glen St. Amant – Muckleshoot Tribe  
Jeff Stern, Debra Williston, Bruce Nairn – King County  
Dave Stoltz – CalPortland (Glacier)  
Denise Taylor – Suquamish Tribe  
Heather Trim – Sierra Club  
Chris Wilke and attorney – Puget Sound Keepers  
Beth Schmoyer – City of Seattle

### **Detailed meeting notes**

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Several key questions were discussed without reaching final conclusions. These questions will need to be addressed in the SAP:

- Will there be a separate regional background for the LDW and Elliott Bay?
- Will the regional background concentration for Elliott Bay be applied to a wider geographic area (perhaps other urban areas or Harbor Island)?
- How does the definition of regional background differ from the concept of recontamination?
- There was a consensus that model results should be used to either inform the sampling plan or provide lines of evidence supporting the final background concentration. There was no clear discussion of how this could be done. For example, how would loading estimates from the EFDC model be treated as, or compared to, potential regional background concentrations?
- What is the appropriate buffer distance away from shore (and from outfalls) for any potential bedded sampling?

*The following notes are comments expressed by individual participants in the workshop. They do not necessarily reflect Ecology's views or those of other participants.*

### **Elliott Bay Alternative 1 – Bedded Sediment Sampling**

We may need more hydrodynamic modeling to determine where the sediment in Elliott Bay is coming from (may have this information in the literature).

Determining regional background could be a multi-year effort.

Regional background will be different for near-shore Elliott Bay (where the cleanup sites are located) versus the basin. We may need to establish different regional zones within Elliott Bay with different regional background values. There were arguments for and against stratification of sampling zones – goes back to the definition.

Sampling design is different if you are just relying on bedded sediment sampling – relying on good statistics and random sampling design to ensure representativeness. If combined with other approaches, can verify with other types of data and/or modeling results.

We need to sample other matrices like stormwater or other lateral sources.

Evaluating sediment from cap monitoring studies (e.g., Denny Way, PSR) would help to determine recontamination potential, which in turn defines regional background. Be careful about which stations you use to avoid influence from neighboring sites, ongoing sources.

Inclusion of any residual from legacy contamination raises major issues. Big problem for some stakeholders, while others agree that diffuse contamination outside of defined sites (but probably originally from sites) could be included. Legacy contamination also creates major challenges for

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sampling along the nearshore areas. The constant redistribution of this legacy contamination will make it hard to accomplish any cleanup.

### **Elliott Bay Alternative 2 – Other forms of sampling**

Sediment traps within Elliott Bay won't work due to limited deposition. We could substitute by using Green River particles from the mouth of the river.

If we're going to use lateral loading data to supplement the regional background, don't default to stormwater samples from residential areas. These samples will have results lower than those from industrial areas, which will result in an artificially low regional background, which is a problem because the regional background concentration will be a clean-up value.

City of Seattle has lateral data of various types for a variety of different types of neighborhoods collected for LDW that could be just as applicable to other areas of the city. City of Seattle thinks you could figure out the general inputs from existing data, does differ somewhat by land use type. Downtown Seattle has a very small drainage basin. But there is a lot of data from Seattle area catch basins (etc.) on the contamination in sediments that will end up in the Bay. It would be possible to come up with a general regional stormwater concentration by land use.

Sierra Club found a load estimate for PCBs (0.67 kg/year from surface water runoff?). There is a current KC study going on re: PCB/PBDE loading to Lake Washington from stormwater and CSOs (contact Jene Colton)

King County said the work done on some CSOs could be used to extrapolate to other CSOs to determine range of depositional zones.

There are not a lot of storm drains along the waterfront, according to City of Seattle (some disagreement).

King County also has some data for unincorporated areas.

PSAT also collected some data in the 1980s for storm drains along the waterfront.

Need to be careful with sediment trap sampling – may not be representative of what is entering the environment.

A current study was proposed similar to that done in the Hylebos Waterway in 1998(?) to get a better idea of sediment movement in Elliott Bay. She later proposed that the ferry should be put into the KC EFDC (or similar) model if it is such a large source of sediment resuspension.

Aerial deposition is important to include, at least for PAHs and probably PCBs. May be captured if you are already looking at laterals, unless it falls out directly on the bay and somehow makes it down to sediments

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General – Many of the models are spatially limited and it will be difficult to apply them towards creating a regional background number.

Use the models as a line of evidence to look for differences in the conceptual model of regional background.

Regional background is always going to be too high to be protective of human health. The RBC should define the clean-up and be informed by the regional background concentration. The regional background should not be the clean-up level.

Question as to what geographic region will these regional background concentrations represent.

What exactly are we trying to characterize? Is the regional background for Elliott Bay/LDW going to be applied to current sediment projects, or is it a target for the future.

Concern about the collection and distribution of non-point pollution (e.g., parking lot goose poop) out of a point source (e.g., CSO). Is the area around the CSO/outfall a potential cleanup site or would it be a SIZ? In general, need to clarify how and where cleanup sites will be defined. We talk about diffuse sources like atmospheric deposition, but when it falls on a parking lot and flows through an outfall, it has become a direct source that cannot be sampled. How do you account for this discrepancy? Along the same lines, if you can't sample around an outfall because it doesn't represent regional background, does that mean the outfall could potentially be a clean-up site under the new SMS rule?

### **Elliott Bay Alternative 3 – Modeling**

CSO modeling for the waterfront has mostly already been done (and storm drains may be relatively unimportant for this area).

The CSO models shown in King County's talk are old and have been updated (even for the waterfront) considerably since then.

The models do lack the ability to incorporate resuspension and prop wash influences.

Some discussion between Terri and Jeff about whether a "jet plume" could be inserted into the waterfront model to mimic the ferry terminal.

Lots of encouragement to use this type of approach but not make it too complicated – divide into areas if necessary and use in a weight of evidence approach to arrive at a usable number. Supportive of this approach, if supported by different bits of data inputs (sediment cap monitoring, nonpoint source influences, legacy contamination, and sediment transport).

The value of the LDW model is to look at temporal changes. If we want to use that model to estimate relative loads, it would need to be recalibrated. A much bigger question (than the model) is which data to use to calibrate it.

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### **Duwamish River Alternative 1 – Bedded Sediment Sampling**

Lots of existing data from Ecology sampling + turning basin dredged material sampling, see Appendix J of the FS.

Could look at capped areas but those are more problematic than along the waterfront due to cleanup areas right next to the caps and influence of the outfalls.

Some cleaner areas such as Norfolk and other pockets within LDW that are not as contaminated could be used as corroboration for other lines of evidence (but not alone, since within the site).

Can't use Green River sediment data alone, not representative of the grain size that dumps out in the LDW, as evident from turning basin data.

KC tributaries to the Green River report due out later this year.

The Green River is not the sole source of sediment to either the LDW or Elliott Bay.

Not all of the sediment from the Green River even makes it into Elliott Bay.

### **Duwamish River Alternative 2 – Other Forms of Sampling**

USGS suspended solids data will need a few more years to be representative, especially of key high-flow events – Ecology working on getting more funding.

Agreement all around that there are temporal loading issues that need to be taken into account.

Initial thought that USGS data seems to be lower than that used to develop the BCM, but disagreement on that due to insufficient data so far.

Need to consider lateral influences in addition to Green particulates; although sediment loads are much lower, chemical concentrations may be much higher. The lateral sources may not contribute much sediment, but the concentrations are high enough to impact total loadings to the LDW (and presumably Elliott Bay). Muckleshoot Tribe disagrees based on the FS report showing not much effect of outfalls once source control is achieved. Questions why we would include lateral load flow alongside the sediment contribution from the Green River, since it doesn't contribute much to the total.

Green River bedded sediment that get washed downstream will continue into Elliott Bay.

USGS is finding results that are lower than those estimated from other models.

Green River may be more representative of natural background than of regional background.

Many of the differences between the USGS study and other work may be a matter of sample sizes. It is often difficult to compare studies or even models due to differences in sample sizes.

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Downriver samples collected from the LDW, or even those from Elliott Bay will contain sediment from outfalls. There will be no effort to back out the outfall contribution from these samples. However, as stated there can be no sampling conducted near outfalls.

### **Duwamish River Alternative 3 – Modeling**

Models for the Duwamish are already well established. We may need to “turn the dial” to best reflect Ecology’s definition of regional background, but they can be useful.

We would need to determine what sources should be backed out of the model to stay consistent with the definition of regional background.

We would need verification sampling to confirm the accuracy of the model.

Redoing the suspended solids part of the model based on new USGS data would require substantial effort.

### Meeting Materials Attachment A Summary of Regional Background Sampling Alternatives for Elliott Bay and the Lower Duwamish River

#### BACKGROUND

On February 22, 2013, Ecology adopted changes to the Sediment Management Standards rule. A key provision in the new rule is the concept of regional background in sediment, which Ecology is currently establishing in several bays in Puget Sound. We have received feedback requesting us to engage stakeholders and tribes earlier in the process of establishing sediment regional background. Specifically, this should include engagement before drafting the sampling and analysis plan (SAP) for Elliott Bay. In response, Ecology conducted interviews with various Elliott Bay/Lower Duwamish River stakeholders and tribes (interviewees) in late June 2013 to solicit thoughts on the development of a SAP for establishing regional background in Elliott Bay and possibly the Lower Duwamish River (LDR). The questions asked and comments, ideas, and questions received are summarized in Attachment B, a report subsequently provided to interviewees.

#### WHAT WE HEARD

Two central themes emerged from the interviews:

- 1) The hydrodynamic system, bathymetry, and source control/cleanup issues in the region may necessitate a different sampling approach than taken for Port Gardner and the North Olympic Peninsula (for more information on these efforts to establish regional background, please see: <https://fortress.wa.gov/ecy/publications/publications/1309051.pdf>)
- 2) A conceptual site model should be established to guide development of the SAP.

Ecology used this information to plan the stakeholder workshop at which we will discuss elements of the conceptual site model in the morning and sampling alternatives (detailed below) for establishing regional background in the afternoon.

The sampling alternatives were developed based on the feedback from the interviews and grouped into general categories. The alternatives represent the complete range of options suggested for discussion, and will be narrowed down and selected amongst by Ecology after the workshop. Therefore, at this time, their inclusion is not an endorsement by any individual participant or Ecology. Multiple alternatives could be selected to be implemented simultaneously, due to the complexity of the situation.

The alternatives are discussed separately for Elliott Bay and the LDR, as it is not anticipated that a regional background value developed for one area would necessarily be applied to the other. Each overall approach is potentially applicable to both areas, but in different ways. A brief description of each concept is provided, along with some key questions for discussion and

developmental work that may be needed if that alternative is selected. For both Elliott Bay and the LDR, the alternatives can generally be grouped into:

- Bedded sediment sampling
- Other forms of sampling (e.g., sediment trap, catch basin, water column particulates)
- Modeling

### **ELLIOTT BAY (EB) ALTERNATIVES**

#### **EB-1. Bedded Sediment Sampling**

This alternative is the most similar to the sampling designs used for previous bays, in which a random sampling approach was used to identify sampling stations representative of all areas of the bay away from sites and sources. In previous bays, a 500-m distance was used to separate sampling stations from site boundaries, sources, and each other.

A variety of sampling areas have been proposed that will be refined further based on the conceptual site model and definition of regional background. The areas suggested by the interviewees include:

- Sampling in the deeper areas of Elliott Bay (inside of a line drawn between Alki and West Point) below the bathymetric drop-off, and excluding the DMMP disposal site and outfall areas.
- Nearshore areas away from sources or sites that might receive more of the generalized stormwater and other urban influences. Example locations could be near T91 or on previously placed caps without ongoing sources. It is understood that areas within outfall depositional zones cannot be included, but there was encouragement to define that area more specifically to see if nearshore areas could be sampled.
- Nearshore areas of the city fronting onto Puget Sound, i.e., retaining urban influences but outside the influence of the existing sites and sources along the waterfront and upstream.

Questions for discussion:

- Which areas conceptually best meet the definition of regional background?
- Within these areas, can a sufficient number of sampling sites be located that are not influenced by existing sites or uncontrolled sources to develop a statistically valid regional background value?
- Which areas are outside the depositional zone of existing outfalls and/or the influence of existing sites that have not yet been cleaned up, given mechanisms of sediment transport and re-suspension?
- Is outfall modeling required to select sampling locations in the nearshore? If so, what is the level of effort required? Are the time/resources/staff available to conduct this work?

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- What can we learn from past monitoring of existing caps regarding regional background concentrations?

### EB-2. Other Forms of Sampling

Sediment transport modeling conducted for the Lower Duwamish Waterway Superfund site suggests that well over 95% of the particulates entering the Duwamish River and Elliott Bay originate from the Green River, with some portion dropping out in the LDR and the rest exiting in a surface layer of water to Elliott Bay. The extent to which these particulates influence bottom sediment concentrations in Elliott Bay is uncertain.

Previous particulate sampling upstream in the Green River to determine chemical concentrations on particulates could be used to estimate concentrations in newly deposited material in the future. These particulates are likely in between natural and regional background, as they would have some influence from commercial/residential areas but not as much as in Seattle proper. Particulates could also be sampled in a future study at the mouth of the LDR, which may be more applicable to Elliott Bay regional background from a geographic standpoint.

Questions for discussion:

- To what extent do particulate concentrations in surface waters exiting from the LDR into Elliott Bay influence bottom sediment concentrations?
- To what extent are the concentrations on these particulates representative of regional background?
- Where are appropriate particulate sampling locations for developing an Elliott Bay regional background?
- What level of effort would be required to obtain these data? How soon could they be available?
- How would this particulate concentration data be used? Alone or as an input to a model?

There are a variety of other sampling alternatives that could also be applied to shed light on regional background or inputs to it. For example, if historic contamination is present in an area where regional background sampling would otherwise be appropriate, sediment traps could be placed in that location to collect currently depositing material. Similarly, if it was desired to know what general stormwater particulate material might be running off of Seattle in residential (i.e., non-site) areas, sediments or particulates in residential catch basins could be sampled.

Questions for discussion:

- What creative options might be available of this nature? How would each of these be used?

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- What similar data may already be available through past Ecology/King County/City of Seattle monitoring?
- Could these data be used on their own or would they need to be integrated with a model?

### **EB-3. Sediment/Chemical Transport and Outfall Modeling**

There are several models that address sediment and chemical transport in the Duwamish River and Elliott Bay, including the Sediment Transport Model (which only covers the Duwamish River), King County's chemical transport model (covers the Duwamish River and Elliott Bay) and the recontamination model developed for the Lower Duwamish Waterway FS. Some of these models could conceivably be used to estimate what regional background concentrations could be in the absence of existing sites and sources, which could be useful if it is difficult to find representative sediment sampling locations. Various data could be put into the model, including particulate chemistry data for the Green or Duwamish River, air deposition data recently collected by King County, etc.

In addition, King County has a CSO model that could be used to better determine the depositional zone around an outfall, which may need to be revised or scaled up for stormwater outfalls in Elliott Bay.

Questions for discussion:

- What is the current status of these models and what scenarios have already been modeled?
- Which of these models has been/could be applied to Elliott Bay (vs. the LDR)?
- What processes/sources are included in the models? How could the models be modified to more accurately reflect the specific definition of regional background?
- What inputs are needed and are these available?
- What is the level of effort required and are the time/resources/staff available to do this work?

## **LOWER DUWAMISH RIVER ALTERNATIVES**

### **LDR-1. Bedded Sediment Sampling**

The question of whether upstream sediment sampling would be appropriate for establishing background concentrations for the LDR has been discussed rather extensively during the Superfund process. The consensus seems to be that Green River sediments (those that do not come in as suspended particulates) are fairly coarse-grained and do not move down into the Duwamish – or if they do, they get dredged out of the turning basin. Other suggestions have been

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## **Elliott Bay / Lower Duwamish Regional Background Workshop Summary**

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to look for areas in the Duwamish upstream of the Superfund site or to sample the surface of the early action areas or areas frequently dredged for navigational purposes.

Questions for discussion:

- Is there general agreement that bedded sediments in the Green River are likely not representative of bedded sediments in the LDR?
- Are there appropriate areas in the LDR (upstream of the site or once some areas have been cleaned up) where sediments could be sampled to evaluate regional background?

### **LDR-2. Other Forms of Sampling**

This alternative is similar to EB-2. However, the ongoing sampling of Green River particulates may be much more applicable to the LDR than to Elliott Bay. In addition, there has been a great deal of recent work characterizing lateral particulate inputs to the Duwamish River that could be useful.

Questions for discussion:

- How long will it be before a more complete particulate data set is available for the Green River?
- How could these data be used (directly or as part of a model) to establish regional background for the LDR?
- What information is available for lateral inputs, and does it reflect the definition and types of sources appropriate for establishing regional background?
- What additional work could be done or is planned to more directly characterize regional urban influences to sediments?

### **LDR-3. Recontamination/Chemical Transport Modeling**

This alternative is similar to Alternative EB-3, except that two of the models are more specific to the LDR than to Elliott Bay and thus may be more useful with less additional effort for this area. Several interviewees mentioned that they believe that the long-term asymptotic recontamination values may reflect regional background. This may or may not be appropriate depending on whether ongoing uncontrolled sources and sites were included in the modeling.

Questions for discussion:

- What sources and influences were included in the chemical transport and recontamination models to date? What scenarios have been evaluated and how consistent are they with regional background?

## **Elliott Bay / Lower Duwamish Regional Background Workshop Summary**

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- Could the existing models be modified or different scenarios evaluated to be consistent with regional background?
- What level of effort/time/resources would this require? Are these resources available?
- Are the needed data available or will they become available through planned data collection activities?

## Meeting Materials Attachment B

July 2, 2013

FROM: Teresa Michelsen, Avocet Consulting

TO: Chance Asher, Dawn Hooper, Washington Department of Ecology

RE: Summary of Early Outreach Interviews with Stakeholders and Tribes

This memorandum summarizes the initial outreach discussions held with stakeholders and tribes regarding development of a sampling and analysis plan (SAP) for determining regional background concentrations in Elliott Bay and possibly the Duwamish River.

### Interviews

All interviews were held during the week of June 24-28 by telephone during business hours, except for one partial follow up discussion held on July 1. Each interview was 1-2 hours long and included an introduction followed a discussion of 8 questions sent at least 2 weeks in advance to each entity. The persons and organizations participating in the interviews and the date and time of each interview are provided in Attachment A.

The introduction consisted of:

- A reminder of the purpose of the call
- An overview of the process and timeline of the project as currently envisioned
- Assurance that these discussions were considered informal, that no decisions had been made yet, and that they would have further opportunities to review the SAP and submit more formal comments
- Clarification that I would be preparing this report after the interviews summarizing the discussions and requesting their permission to have their thoughts and comments included in the report
- An opportunity to ask any questions before beginning

Both tribes requested that the comments be summarized in a non-attributable form, due to the need to obtain formal tribal approval before submitting comments in written form. Hence, the thoughts expressed by the interviewees herein are summarized as general points, counterpoints, questions, and suggestions, with an indication of the number of participants in agreement on an issue.

## **Elliott Bay / Lower Duwamish Regional Background Workshop Summary**

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Several participants also requested an opportunity to review the summary of the interviews in preparation for the workshop.

Questions asked after the introduction included:

- General questions about the timeline for the project
- Questions about how this process could affect the Record of Decision (ROD) for the Lower Duwamish
- Questions about how much funding Ecology has to develop regional background concentrations in this and/or other areas

The latter two questions were deferred to Ecology.

Finally, many participants expressed appreciation for the opportunity to have early input and participate in the process in a collaborative manner. There was general concern on all sides that the bays that are being worked on now will become the case studies that will be included in the Sediment Cleanup User's Manual II (SCUM2), and that they will set precedent for other areas of the state. This was frequently cited as the reason for a desire to have involvement in the process, not only for this bay.

The sections below are organized around the 8 questions discussed during the interviews. Each question is reproduced followed by a summary of the responses to the question. Questions 2-4 were found to be strongly interrelated, and were generally discussed as a group. Therefore, they are addressed together below.

### **1. What analytes are important and likely to be driven by natural/regional background in EB/LDW?**

**Previous SAPs have included As, Cd, Hg, cPAHs, dioxins/furans, and PCBs.**

- Many interviewees mentioned phthalates as a possible group of chemicals that could have a regional background higher than the benthic criteria. There was uncertainty as to whether this would be the case, but it was thought that a review of existing data might help determine whether this is likely.
- To offset the cost of analyzing phthalates, the PAH data could be reviewed to determine whether the SIM approach is needed based on the concentrations typically seen in Elliott Bay and/or previous bays sampled. If the standard 8270 approach could be used, then phthalates

## Elliott Bay / Lower Duwamish Regional Background Workshop Summary

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would be obtained automatically. Phenols and several other chemical groups that have been identified as being above risk-based levels in parts of Elliott Bay/Duwamish would also be obtained through this method.

- There were similar questions about whether butyltins from general shipping traffic in terminal areas might exceed levels protective of benthos. This could potentially also be screened based on existing data.
- All participants agreed that As, cPAHs, dioxins/furans, and PCB congeners were appropriate and important to include. These are the four human health drivers identified for the Lower Duwamish.
- Participants who expressed an opinion on the metals were unaware of a need to include Cd on the list for Elliott Bay/Duwamish. As and Hg have known sources, including natural sources that sometimes cause exceedances, and were recommended to remain on the list. For areas affected by outfalls or where vessel traffic is high, Cu and Zn were suggested as candidates by one participant.
- Several interviewees indicated that use of a different tribal RME (e.g., Suquamish rather than Tulalip) might have identified additional chemicals of concern for human health in the Lower Duwamish and might also in Elliott Bay. There were questions about how the analytes could be identified without first identifying the RME/consumption rate and conducting a risk assessment to see which chemicals are of concern and might fall below background. Tribal consultation was recommended to identify the RME and the contaminants of concern for the area.
- One group requested that a comprehensive study of Elliott Bay (i.e., similar to Puget Sound Initiative bay-wide studies) be conducted for a wide-ranging group of analytes, to include endocrine disruptors, PBDEs, etc. Particularly with the latter group of chemicals it was felt that Ecology needs to begin including these chemicals in their studies. This baseline information was believed to be needed to provide a basic understanding of the current status of Elliott Bay before developing regional background concentrations. It was suggested that the additional cost could be offset by cost-sharing with PRPs.
- There were several requests for a very clear description in the SAP of why analytes were included or excluded that is bay/river-specific.

## **Elliott Bay / Lower Duwamish Regional Background Workshop Summary**

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**2. Where should regional background be sampled to be representative of sites along the shoreline in Elliott Bay? What about sites in the Lower Duwamish? Should Elliott Bay and Duwamish regional background be established separately or are they likely to be the same?**

**3. Can regional background for Elliott Bay be applied to any part or all of the Lower Duwamish? Why or why not? Which parts?**

**4. What roles do bathymetry and sediment transport play in this regime? How should they be taken into account, including cost/effort/time considerations?**

Some general issues were raised in response to these questions, echoed by nearly all participants:

- The rule definition of regional background does not provide enough guidance on exactly what should be included or must be excluded. Ecology is requested to provide a more clear discussion of this as part of developing the SAP, at or before the workshop. There is concern that the previous SAP designs do not meet the letter or intent of the rule language and that the design should not be replicated in Elliott Bay. This concern is heightened by the concern that these bays will be used as case studies to set precedent for the rest of the state, as noted above. Two specific issues are described below.
- One concern is that the influence of regional stormwater is not being captured by the current study design in any of the bays, because the samples are too far from the shoreline or areas that are being influenced by any stormwater. This is particularly a concern in Elliott Bay because of the steep drop-off between the nearshore areas in which both sites and the generalized influence of stormwater would be expected, and the offshore deep basin, in which many parties do not believe that these influences are seen at a level that would reflect regional background as defined in the rule. There is a strong recommendation from many parties for Ecology to more accurately determine the depositional zone around an outfall and sample in areas outside it that are still nearshore and within the more generalized influence of regional stormwater. Otherwise, this group of interviewees felt that the resulting value would be so close to natural background that it would not move cleanups forward and would have little value, aside from not truly reflecting regional background.

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- An opposing concern is that some parties feel there is nowhere within Elliott Bay or the Lower Duwamish that is outside the influence of a site or source, particularly given the presence of the Lower Duwamish Superfund site upstream of Elliott Bay and the many other major sources and sites surrounding the area.
- Combining these two concerns, there was no interviewee who felt that sampling in the deep basin of Elliott Bay was appropriate. Other alternatives were suggested (more on that in the technical section below).
- One aspect on which all interviewees agreed was the need to develop a conceptual site model that clearly lays out what is known about sediment transport, chemical sources and transport, bathymetry, and other influences on regional background. This should be combined with knowing exactly what question you're trying to answer with the sampling and how that relates to the rule. All sides felt that this would inform Ecology's sampling design and help determine the areas to which the resulting regional background value could be applied. This may also be something that we can work toward reaching consensus on in a workshop. Once this is completed, appropriate sampling areas/methods could be determined.
- Several participants state that this conceptual site model should be clearly described in the SAP to justify the sampling design, describing how the sampling design reflects the rule definition as well as the conditions in the bay/river.
- This bay/river system is considered by all to be much more complex than other bays Ecology has worked in or may tackle in the immediate future. As such, there was a general recommendation to take the process slowly and work through all the issues, including both regulatory and technical, to get it right, even if that delays or complicates the process. On the other hand, much work has already been done and many of the parties have tools and/or studies that can be brought to bear on the problem, and are willing to work with Ecology to share the workload.

More specific technical responses to the issues of where/how sampling should be conducted included:

- With regard to regional background in Elliott Bay, many interviewees believe, in part based on outfall modeling conducted by King County, that the identifiable depositional zone around an

## Elliott Bay / Lower Duwamish Regional Background Workshop Summary

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outfall is much smaller than the distance currently being used by Ecology to separate samples from the shoreline and from outfalls.

- To capture the influence of regional stormwater, this group suggests sampling in nearshore areas of Elliott Bay that are away from specific sites and outside the depositional zone of outfalls, rather than in the deep basin. Some areas suggested included the north waterfront near T91 and the surfaces of clean caps previously placed at cleanup sites. They believe these areas will be much more representative of recontamination that could be expected after a cleanup based on regional sources. It was suggested that sampling areas should have similar sediment transport environment, depths, and sources as the sites to which regional background will be applied. However, it was widely recognized that finding specific appropriate locations could be difficult and would need to be carefully examined.
- King County has a CSO model that they have used to evaluate depositional zones for their CSOs, but it might need to be scaled up for stormwater outfalls that have greater annual discharge. King County also has a chemical transport model for the Duwamish River and Elliott Bay that could be applied. It was suggested that Ecology and King County work together ahead of time to see how King County's models and data could be useful in this effort.
- A couple of participants believed that the inner and outer Elliott Bays (not clearly defined) would be different from each other as well as from the nearshore areas. This is one reason it would be important to define exactly what is being included in regional background, to determine which area would be most appropriate to sample.
- Another participant pointed out USGS studies of the underwater slopes in Elliott Bay, showing slumping in various areas due to large events such as earthquakes and construction activities. Information on this can be found at <http://geopubs.wr.usgs.gov/open-file/of01-266/html/article.htm>. This could indicate that at least in some areas, the nearshore environment does influence the deeper offshore areas of Elliott Bay.
- In general, most participants agreed that the conceptual site model for the Lower Duwamish vs. Elliott Bay would be quite different in terms of sediment transport and bathymetry. Some felt that this would result in different regional background concentrations. Others suggested that regional background concentrations might nevertheless be similar because the urban sources affecting the nearshore areas of Elliott Bay and the Lower Duwamish River are similar.

## Elliott Bay / Lower Duwamish Regional Background Workshop Summary

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- For the Lower Duwamish, most participants referred to the suspended solids sampling studies that are currently being conducted by USGS and King County. There was fairly unanimous agreement that most sediments entering the Lower Duwamish and circulating eventually to Elliott Bay originate from upstream in the Green River. Most or all participants also agreed that suspended sediments were more representative of the material that moves downstream than the bedded sediments in the Green River, because those are quite coarse-grained and do not move substantially (or if they do, they end up in the turning basin and are dredged). Most participants believed that these concentrations would conceptually fall somewhere between natural background and regional background, as they would receive some urbanized influences from surrounding land uses, but not nearly to the extent that areas near Seattle would receive.
- Many participants expressed doubts that sampling alone could provide a regional background number for Elliott Bay or the Lower Duwamish, because sampling locations that meet all criteria representative of regional background would be difficult to find and many sampling locations might still contain the influence of legacy contaminants. Many participants proposed alternative approaches as additional lines of evidence, such as modeling using a combination of the existing Sediment Transport Model and King County's chemical transport model, suspended solids concentrations from the Green River, results of sediment trap sampling or catch basin results from areas without sites (e.g., residential areas), sampling of the very surface layer of areas that are frequently dredged in the lower Duwamish, and nearshore sampling in Elliott Bay. Combining all of these types of data in a weight-of-evidence approach may provide insights that any one alone would not give.
- Several participants mentioned the recontamination modeling that has been done for the Lower Duwamish Feasibility Study as a way of estimating regional background using the ultimate steady-state concentrations predicted by the model. This ties in with an emphasis on the idea that regional background should reflect the recontamination that will occur in an area after cleaning up a site or area near an outfall. Setting the regional background at this level, even though it may start out higher, provides a technically feasible target that can be met, and allows for monitoring of the improvements that are made over time as cleanup and source control improve the resulting surface layer of sediments.
- In line with the above, it was suggested that this is one geographic area in which Ecology/EPA should commit to reevaluating regional background over time, as a way of providing additional comfort level that starting with the current potential for recontamination will not become the

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perpetual status quo over time and that regulatory regional background concentrations will be lowered as it is appropriate to do so.

- Due to concerns that all of Elliott Bay is influenced by upstream sites and sources, some participants expressed a greater comfort level with using the Green River data for all of Lower Duwamish/Elliott Bay than with sampling anywhere in Elliott Bay. These participants felt that the Superfund site should not be allowed to influence regional background for Elliott Bay in even a diffuse manner.
- Other suggestions to avoid the inner bay include sampling along the outer shoreline of Seattle where it fronts onto Puget Sound, or look to see whether the Central Puget Sound areas of the Bold data set might be different from the overall data set, i.e., might be influenced by Seattle.

With respect to whether Ecology should develop a regional background value for the Lower Duwamish, respondents had these comments:

- Several respondents questioned the cost/benefit of such an effort, wanting to know whether it would help or hinder the Superfund process. Several different issues fall under this category:
  - Concern that the resulting value would be similar enough to natural background that it would not appreciably change the remedial action levels (RALs) or cleanup levels in the ROD, and would therefore not be worth the cost/effort
  - Concern that the timeliness of the Superfund process would be adversely affected in terms of getting to remedial design and active cleanup
  - Concern over the time and effort that has already been spent trying to determine area background for the Lower Duwamish without success
  - Concern that there would be a push to get it done so that it could be reflected in the ROD, and that it would be rushed and underfunded, not adequately reflecting the complexity of the situation
  - It is not the highest priority to revisit the issue for some respondents with limited capacity, and they do not want to lose ground from the decisions already laid out in the Proposed Plan; these respondents are feeling at a disadvantage compared to other parties with greater resources and would not be able to use their existing funding to participate in this effort

## Elliott Bay / Lower Duwamish Regional Background Workshop Summary

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- A counter-balancing comment (sometimes from the same participants) is a continuing desire to have a more workable, technically feasible regional background value for the Lower Duwamish that can be met and accurately reflects the potential for recontamination that is likely – not only for the cleanup but also for day-to-day activities such as permit renewals, etc. These participants are concerned that the only cleanup levels available for the Lower Duwamish will be the natural background values currently in the ROD, which they consider infeasible and impossible to meet.
- One group of respondents was highly opposed to developing a regional background for the Lower Duwamish, since all of the PRPs are already at the table and participating in the cleanup process. This group identified the stated purpose of regional background as getting things moving and providing an incentive for parties to come to the table, and they considered the Lower Duwamish process as well past that point. They pointed out that Technical Impracticability waivers are already available if parties cannot meet the cleanup standards, and questioned why further tools would be necessary. Regional background appears to them as just a means of lowering the bar for cleanups that are already required.
- On a technical level, some of the proposals for determining regional background for Elliott Bay involve using Green River data, in which case they could be applied to the Lower Duwamish as well. If an approach is selected for Elliott Bay that involves downstream sampling, than a different approach would likely be needed for the Lower Duwamish. Most participants did not think that Elliott Bay or other downstream sampling could be applied upstream in the Lower Duwamish; however, it would ultimately depend on the conceptual site model.

**5. Based on working through the Port Gardner data set, Ecology has developed a draft approach for deciding when to analyze secondary samples (samples that are initially archived but were collected using a random sampling design to provide greater power if needed). All of the comparisons below are on a chemical-by-chemical basis. Therefore, it is possible that additional samples would be analyzed for some, but not all, chemicals. We are interested in any comments you may have on this approach, which proceeds through the steps below in order:**

1. **Precision.** We are seeking a certain amount of precision in the background distribution. The goal stated in the SAPs is for the 90<sup>th</sup> upper confidence limit on the mean to be within 25% of the mean. *Therefore, if the precision is better than or approximately equal to 25% we would not need to analyze additional samples.* If the precision goal is not met, go to 2, below.

## Elliott Bay / Lower Duwamish Regional Background Workshop Summary

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2. **Concentration.** Compare the 90/90 UTL of the collected data set to the 90/90 UTL of the Bold natural background data set. First, compare the local reaches of the Bold data set to the entire Bold data set to determine if they are from the same statistical population. If they are the same, use the larger Bold data set in the comparison for greater statistical power. *If the 90/90 UTL from the bay is similar to or lower than the 90/90 UTL of the Bold natural background data set, then do not analyze additional samples, as regional background will be the same as natural background for that chemical.* If the local 90/90 UTL exceeds the Bold 90/90 UTL, go to step 3.
  3. **Confidence in the Data Distribution.** *Additional samples would be analyzed if the upper portion of the distribution is above the PQL and inspection of the data distribution shows that the upper portion of the distribution is patchy or otherwise poorly defined.* If all samples are below the PQL, it is likely that the lack of precision is due to analytical uncertainty that cannot be improved by analyzing additional samples. Similarly, if the upper tail of the distribution within which the 90/90 UTL will be located is already well defined and occurs over a narrow concentration range, additional samples may not help in determining the 90/90 UTL.
  4. **Sample Selection.** If additional samples are targeted for analysis, they will be selected from among the random samples archived as described in the SAP, first to last in numerical order (already randomized in location).
- Several participants wondered whether the goals for precision were realistic or necessary, i.e., might there be actual variability in the population greater than this?
  - It was stressed by several respondents that the main issue is that the area initially selected for sampling actually represents regional background, and that the specific statistic was of lesser importance to them
  - One respondent felt that if Ecology was sampling in the main basin of Elliott Bay or anywhere downstream of the Lower Duwamish, the regional background distribution would be biased high due to influences from the Superfund site. Therefore, use of a statistical value in the lower part of the distribution was suggested to correct for this bias. Another respondent echoed a preference for a more conservative statistic to avoid setting the value too high for cleanup.
  - One respondent asked what statistic Ecology was leaning toward for regional and natural background. Another respondent asked for a clear justification of the statistic chosen in terms of error rates and real-world consequences.

- Several respondents were interested in hearing about the grain size and TOC correlations, distance from sources, and how outliers would be handled, particularly if nearshore sampling in Elliott Bay is conducted.

### **6. Are there any other specific issues you would like to have addressed by the stakeholder group and/or Ecology?**

- Continued concern was expressed regarding the use of these initial bays as case studies and the degree to which they would set precedent. It was suggested that Ecology clarify, possibly in SCUM2, which aspects of the case studies are expected to be similar across sites and which could be site-specific.
- Similarly, a need was expressed to better understand how a regional background concentration derived for an area applies to 1) sites with existing decisions (i.e., could parties ask to renegotiate limits or monitoring targets), 2) sites with pending decisions, and 3) future sites and site identification.
- There was a general concern expressed over the positional interests of many of the parties involved in the regional cleanups, and trying to work together in a more collaborative approach to focus on technical issues or identify areas of common interest. Some of this could be resolved by Ecology more clearly defining regional background and what is included so that everyone is working toward the same definition/goal.
- A participant reiterated a concern that the goal be attainable and include the urban signature and regional stormwater.
- Another participant reiterated the need for more current and comprehensive baseline data for Elliott Bay.
- A participant asked how regional background would be monitored to evaluate changes over time.

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- Two interviewees identified the need for tissue background as a pressing issue for evaluating the results of risk assessments.
- Some lack of clarity as to how regional background overlaps with CWA requirements, NPDES permits, stormwater permits, and source control for the Superfund site was evident during several of the discussions.

**7. Are there any parties that should be included in this discussion that may not have been in the past? Our current discussion list includes City of Seattle, King County, Port of Seattle, Boeing, Duwamish River Cleanup Coalition, Muckleshoot Tribe, Suquamish Tribe, and Glacier-CalPortland, as well as regulatory agencies such as EPA, Corps, and DNR.**

- Several participants mentioned that Anchor (Clay Patmont and David Templeton) were working with some of the smaller Lower Duwamish PRPs in groups and might be able to represent their interests in a workshop.
- Mike Stoner was mentioned by a couple of respondents along with interested parties from other upcoming bays, such as the Port and City of Tacoma, etc. This is related to the concern about these early bays setting precedent for later ones and therefore, these parties needing to be engaged early.
- NOAA was suggested by several participants as having expertise in the waterway. In particular, Jessica Winter at NOAA did her dissertation on the sediment transport model and could be a good resource.
- Northwest Indian Fisheries Commission was suggested by one participant. Sierra Club (Heather Trim) and Puget Soundkeepers Alliance (Chris Wilke) were brought in by DRCC on the call and they are interested in remaining involved.
- One participant mentioned the environmental justice communities that are present on the Lower Duwamish and a commitment by EPA to provide an open process that they could participate in. If Ecology decides to develop a regional background concentration for the Duwamish, these communities would need to have a way to participate.

### **8. What preferences do you have for future engagement and/or ideas for a productive workshop on the SAP design? What would you like to get out of the workshop?**

Process comments included the following:

- A number of participants felt that the timeline for the upcoming workshop was too short, as there was a fair amount of preparation that should be done, including gathering and sharing information on the tools and data that could help set regional background, preparing good maps showing what is known about sediment transport, bathymetry, and sources, and time to adequately plan the format and schedule the workshop. Several participants were concerned about the timing of the workshop in the summer and having enough advance notice and involvement in setting the date to participate.
- Several participants requested that information be sent out before the workshop – e.g., maps, initial ideas, more detailed discussion of regional background concepts. There were also requests to see this summary of the interviews to prepare for the workshop.
- One participant wanted to hear more about what happened between the SMS workgroup process and the final rule. Several people reiterated that they wanted to have as much feedback as possible during the process about how Ecology plans to use their input, in part due to concerns left over from the rule workgroup.
- There is a concern that this process would be PRP-dominated, given the resources that others have to participate and who stands to benefit the most. One participant stated that a positive outcome would be if the relative influence of the various interests at the table felt more balanced than in the past.
- One participant expressed hope that the workshop could have more of a collaborative feel, like the early SMS technical workgroup. Several other participants also stressed a desire to have a working meeting rather than either a “listening session” or a meeting where decisions have mainly already been made. Several participants noted the need to strike a balance between presenting something to respond to, while still giving the participants the ability to help shape the final outcome.

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- Several participants suggested that it might not be possible to do everything in one meeting, and that 4 hours was likely not long enough. They suggested that the first meeting should focus on the “front end” – education and reaching a common understanding of the environment.
- A summary of the results of the workshop was requested as well as how it will be used.
- Tribal staff requested consultation with respect to selecting risk assessment parameters in the context of identifying contaminants of concern that might be below background.

More technical goals and requested outcomes/activities for the workshop included the following:

- Identifying and sharing the sources of information and tools we have available for developing regional background concentrations.
- Sharing what has been learned so far from previous bays (e.g., Port Gardner).
- Agreement (or hearing from Ecology) on exactly what regional background represents – what is in or out, how does that affect where we might want to sample.
- Developing a conceptual site model involving sediment transport, chemical transport, bathymetry, and sources of contamination.
- Using that model to reach agreement on the area Ecology will be addressing and possibly even start choosing areas/points on maps that represent that area.
- Figuring out an approach or alternative approaches to determining regional background and how multiple lines of evidence could be used and combined.

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- An honest assessment of whether determining regional background for Elliott Bay and/or the Lower Duwamish is even possible, and allowing that to be one of the possible outcomes of the discussion.
- Understanding where various parties stand and why they hold those positions, if agreements are not reached.
- Developing a path forward for future interaction.

### Attachment B

#### APPENDIX A

##### List of Interviews/Interviewees

June 25, 2013, 9:00 am

Port of Seattle, Doug Hotchkiss and Kym Anderson

June 25, 2013, 11:00 am

King County, Debra Williston and Jeff Stern

June 25, 2013, 3:00 pm

Muckleshoot Tribe, Glen St. Amant

June 26, 2013, 10:00 am

The Boeing Company, Will Ernst

Windward Environmental, Kathy Godtfredsen

June 26, 2013, 1:00 pm

Suquamish Tribe, Denise Taylor

June 26, 2013, 3:00 pm

City of Seattle, Pete Rude

June 28, 2013, 10:00 am, reconvening on July 1, 2013, 3:00 pm

Duwamish River Cleanup Coalition, James Rasmussen

Puget Soundkeepers Alliance, Chris Wilke

Sierra Club, Heather Trim

June 28, 2013, 11:00 am

Glacier-CalPortland, Pete Stoltz

July 2, 2013