

King County Detailed Comments on EPA Proposed Plan for the Lower Duwamish Waterway

Big Picture Comments

King County is providing comments intended to improve the Environmental Protection Agency's (EPA) proposed cleanup Plan (Plan) to result in both the maximum possible reduction of risk from consuming resident seafood and the minimum increase in short-term risks. Existing disproportional public health issues in the community will remain following any cleanup EPA selects and will still need to be addressed. The County is committed to working with the communities and the other local jurisdictions to identify the methods and means to reduce these disproportionalities and improve public health.

This document includes recommendations for improving cleanup actions as well for modifying the goals to establish an achievable "finish line" for the cleanup. EPA has identified more than 100 potentially responsible parties (PRPs) and having more certainty about the scope, intended outcomes, and cost of the cleanup are needed to help make the cleanup successful. We also need to be transparent to our residents, ratepayers and customers about the outcome they can expect from hundreds of millions of dollars of investment.

The importance of an understandable document.

The Plan is a very technical document, it is important that the general public can grasp the details of what is being proposed and how EPA came to its decision on a preferred alternative. Without this, the public is challenged to make an informed decision about the significant and impactful choices it is facing among the alternatives being considered and the effects those alternatives will have on them. In addition, it is difficult for the public to make an informed decision on how best to revise the Plan. This becomes even more important because the cleanup can both improve and worsen health problems that already disproportionately affect this community compared to other areas of Seattle.

Compliance with the Record of Decision needs to be clearly defined.

In addition to our recommendations for improving the actual cleanup plan, we also have recommendations for modifying the goals to establish a more certain and achievable "finish line" for the cleanup. The Plan for the Lower Duwamish Waterway (the Waterway), as currently written, would not allow prospective implementing parties to determine what constitutes a successfully completed cleanup. Such uncertainty we believe will very likely delay implementation and have a dramatic impact on the local business community. We believe EPA can avoid this situation by ensuring that EPA's Record of Decision (ROD) clearly addresses:

1. What can be achieved by the remedy and what needs to be demonstrated for compliance,
2. Once compliance measures have been met, state unambiguously that EPA will develop a new ROD if further actions are identified which could improve sediment concentrations, and
3. Source control expectations are clearly defined and are addressed under the Clean Water Act.

Details on each of these items follow:

Define what the remedy can achieve and what needs to be demonstrated for compliance.

The Plan includes sediment and tissue preliminary remediation goals (PRGs) based on natural background concentrations. In reality, the Waterway will get cleaned up to the point consistent with upriver and lateral inputs, which are subject to improved source control. Attaining natural background levels is not achievable in the urban setting of the Waterway. In addition, the surface water PRG for PCBs is exceeded upstream of the Waterway. The Plan fails to describe what would be required of the sediment cleanup when natural background based PRGs and the surface water PRG are not achieved. The Plan also fails to clearly explain how one would demonstrate compliance with tissue or surface water cleanup levels by implementing the preferred remedy for sediments described in Section 10 of the Plan. Since these cleanup levels are not achievable through the sediment cleanup actions, they should not be included in the ROD. Including them would result in non-compliance, and would improperly burden the implementing parties with an undefined scope. The Plan is simply unclear regarding what further actions would be required and if such further actions could ever result in compliance with tissue and surface water PRGs in the waterway.

The Plan's language can be improved to provide more clarity and certainty. As it stands, EPA's description of what actions outside of monitoring are expected after implementing the preferred remedy is very vague and uncertain. For example, the Plan, at Section 10.3, page 96 states *"EPA will review the data and consider whether additional sediment cleanup has the potential to further reduce COC concentrations in sediments, tissue, or surface water and associated human health risk and is technically practicable. If so, EPA, in consultation with Ecology and the Suquamish and Muckleshoot Tribes, will select additional remedial action in a future decision document (ROD Amendment or ESD)."* This language, together with language in Section 5.3, page 42 that states *"It is EPA's expectation that once all anticipated action for the Site has been implemented, COC concentrations in the sediment, surface water, and fish and shellfish tissue will be protective of all anticipated uses"*, is not clear regarding future actions that could be required. The Plan describes the cleanup action in other sections as a sediment cleanup and should thus state with specificity the remedy compliance requirements and the circumstances that would trigger the need for further actions. To further reduce surface water or tissue concentrations beyond what can be achieved in a sediment cleanup is a broader watershed issue that should be addressed under other regulatory programs.

The definition of recontamination in the Plan is too vague to determine compliance. The Plan states in several places that *"sufficient source control should be conducted to minimize recontamination,"* but does not define the criteria EPA will use to determine when source control is "sufficient" and does not clearly define the term "recontamination". When these factors are considered together with the vague definition of the site (discussed under the third point below), the public and future implementing parties do not have sufficient information regarding either the "what" or the "where" as they relate to the preferred remedy.

The ROD needs to clearly define actions and achievable measures to determine compliance with those actions so that the public and future implementing parties can determine the expectations of the remedy. For both public entities and private parties, their level of legal liability needs to be sufficiently understood and bounded. The inability to account for the costs of environmental liabilities can dramatically increase the debt they have to assume and/or their ability to sustain their business. The Plan must provide sufficient certainty so that the incentive to join into settlement exists and so that prospective parties can begin to negotiate or sign up to conduct the cleanup.

Once compliance measures have been met, state unambiguously that EPA will develop a new ROD if further actions are identified which could improve sediment concentrations.

If the signing parties have clearly implemented the ROD, there should be clear direction that they have met their obligation. The Feasibility Study demonstrates that further sediment cleanup actions are not expected to result in further improvements to the long-term predicted sediment concentrations because the conditions will be dominated by incoming sediments and water from the Green River. Under these circumstances, it is only appropriate to start a new process if at some point in the future additional actions are determined to be required. This new process would not be a ROD amendment (or Explanation of Significant Differences) but a new ROD, since the participants under the original ROD would have fulfilled their obligations once the performance criteria have been met. This needs to be clearly stated in the ROD. Such clarity of responsibility and process is needed before parties will be willing to sign up for their share of the cleanup and can only improve the speed and consistency of implementation.

Define source control expectations clearly and address them under the Clean Water Act.

Source control compliance will be exceedingly difficult to demonstrate because, among other things, the surface water PRG for PCBs is currently exceeded in the Green/Duwamish watershed and incoming sediments entering the Duwamish are also above the natural background-based sediment PRGs. Together with the vague definition of the site, “... *the waterway as well as the upland sources of contamination*”, source control obligations become undefined to potentially include all upland areas in the upriver watershed. Source control prioritization and the determination of sufficiency must be clearly and reasonably defined, yet the Plan can be interpreted to apply the PRGs to virtually all discharges and the incoming river flow to the Lower Duwamish. The site should be defined as the Waterway from River Mile 0.0 (southern end of Harbor Island) to 5.0 (just north of the Upper Turning Basin and the Norfolk EAA area) and from the mean higher high water (MHHW) level from one side of the bank to another (as noted in Section 5.3 of the Plan). This is the site definition upon which the Feasibility Study is based.

The PRGs potentially affect every property in the watershed (since those properties contribute runoff) and all parties with existing National Pollution Discharge Elimination System (NPDES) permits issued by the Washington State Department of Ecology. If Ecology attempts to meet the unachievable PRGs through industrial or municipal NPDES permits, the outcome would be unachievable obligations. Public expectations will be set that NPDES permits should include the surface water PRG, even though it is not attainable in the Green River and other area rivers (e.g., Snohomish and Puyallup Rivers).

As noted above, the Plan refers in several places to source control sufficient to “minimize recontamination” but does not define the criteria EPA will use to determine when source control is “sufficient” and does not state a clear definition of recontamination. Recontamination should be defined in the ROD as point exceedances above Remedial Action Levels (RALs). It is not appropriate to equate this to the PRGs that are based on site-wide or area-specific average concentrations. Area-wide long-term monitoring determines remedy progress to meeting the Remedial Action Objectives (RAOs) 1, 2 and 4. Without clarifying recontamination, the same problems discussed above concerning unachievable obligations under Clean Water Act programs will occur.

The ROD should not create inconsistencies with the existing regulatory programs that provide the appropriate tools to address source control issues. Such problems can be avoided, without any loss of regulatory ability to implement the cleanup, if the ROD clearly limits the site definition to the areas containing sediments in the

Waterway, sets achievable goals, defines recontamination as exceedances of the Remedial Action Levels, and clarifies that source control is conducted under Clean Water Act programs. King County clearly acknowledges that there is significant work to be accomplished to control ongoing sources and is committed to both its own efforts under applicable legal authorities and working with other partners to further reduce pollutant inputs into the Waterway. If the ROD does not include a clear path to compliance, it will be more difficult, if not impossible, to reach a reasonable and fair allocation of cleanup costs outside of the courts. Litigating the responsibility for cleanup will only delay the start of cleanup and increase the costs of all the responsible parties, without achieving gains to environmental or health protection. We do not believe that is an outcome that will meet the needs of the local community, businesses, and taxpayers who want to get the cleanup started quickly and reduce human health and environment risks sooner.

Reduce the period of elevated risks.

Given the duration of construction-related impacts for EPA's Preferred Alternative (over 7 years), the short-term impacts should be given more weight in EPA's decision-making. The short-term impacts of EPA's Preferred Alternative are greater than the other alternatives that have shorter construction times.

The Plan uses uncertainty in exposure of subsurface contamination to justify more mass removal of PCBs even though more removal does not reduce the risk to human health. Residual risk is not reduced by more dredging because long-term sediment concentrations are dominated by incoming inputs from the Green River. In fact more dredging increases short-term risk from construction impacts to both seafood consumers and the broader community. Risks to seafood consumers are increased due to the longer period they are subjected to current high-risk levels (i.e., from fish and shellfish tissues being exposed to contaminants released during dredging), which will not be substantially reduced until a few years after dredging activities cease (see Figure 1).

If the cleanup alternative results in more dredging (e.g., similar to Alternative 5R), then the longer duration of construction will result in longer periods of higher exposures to the population. This is particularly important for exposure risks to children; even a few years of higher risk exposure can mean many additional children would be subjected to those higher risks. Risks to the broader community are also increased due to the additional years of construction impacts, which result in impacts to traffic and air quality (e.g., creating greater likelihood of more accidents and asthma hospitalizations). This period of increased risk should be shortened to reduce real risks to both seafood consumers and the broader community – not lengthened when the only purpose of more dredging is to reduce a future possibility of risk from buried contaminant exposure which can be better managed through adaptation management strategies that actively involve the community and take action only when needed.

The alternative descriptions for Remedial Action Level 1 (RAO 1) imply that as more area is actively remediated, greater risk reduction is achieved - but there is no risk analysis in the record that supports these statements. In fact, the Feasibility Study and supporting documentation show similar risk reduction for each alternative when cleanup objectives are met (see Figure ES-11). The alternatives (listed in order from 1 through 6) require removal of greater amounts of contaminated sediment but this does not mean greater risk reduction is achieved. Indeed, future exposure analysis conducted for the Feasibility Study (Appendix M, Part 5) demonstrated that a wide range of acres of contaminants isolated in subsurface sediments would have to be repeatedly exposed before any measured increase in risk was possible. Figure 2 (adapted from Feasibility Study Appendix M, Part 5, with some additions for context: a secondary y axis added to show excess cancer risks, the high and low BCM sensitivity long-term model-predicted PCB concentrations, and the sediment PRG)

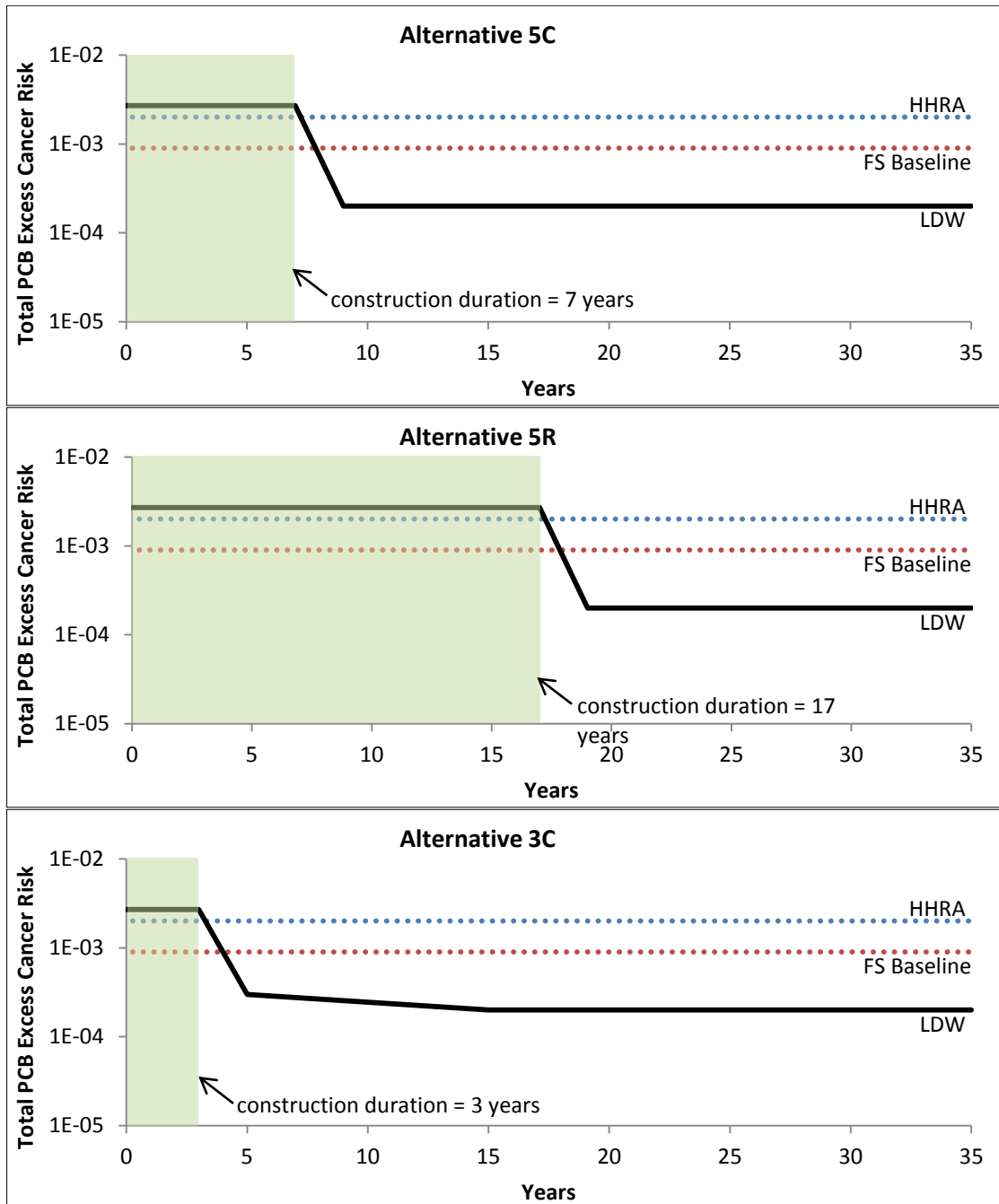
clearly demonstrates exposure of buried contaminated sediment in the 4C-5C alternative range would need to reach vast areas of the Waterway each year before any measurable increase in risk was possible.

The exposure of such large areas to repeated disturbance has not been demonstrated and is therefore very unlikely and speculative based on existing disturbance data, suggesting it is highly uncertain to ever occur at such a scale needed to result in any increase in human health risk. Analysis of sun illumination maps from bathymetric data presented in the Feasibility Study, which shows recent disturbance features, indicated only a few acres with noticeable disturbance. The existing geochronology cores representing the last 50 to 100 years of history were distributed throughout the Waterway to get representative sedimentation rates. Fourteen percent of the cores were unreadable with one possible explanation being mixing events deep enough to expose subsurface contamination sometime in the last 50 to 100 years (86% did not experience any deep mixing events in that time period). To place this into context, over 14% of the Waterway (>62 acres) would need to be exposed every year, repeatedly, in areas with remaining subsurface contamination, to generate any measurable difference in risk (Figure 2). Various alternatives leave 53 to 100 acres of subsurface contamination of concern (or 14 to 23%). That would mean over one half to almost all of those areas would need to be continually exposed for there to be any risk implication of leaving subsurface contamination. Using this factor to heavily weigh the effectiveness and permanence criteria unfairly considers and evaluates the alternatives.

King County disagrees with the statement in the Plan on page 82: "Contamination remaining in subsurface sediments and not isolated by a cap would contribute to future risks if they are brought to the surface of the waterway through natural or man-made events such as earthquakes, vessel scour, or construction activities." This statement we believe is misleading to the public in terms of future risks. The effects on future risks are dependent on the exposed sediment concentrations, duration of exposure and the degree or amount of area exposed. It is not a given that risk would change through disturbance events. The remedy decision should be focused on avoidance of actual risks from construction by dredging only what is necessary, not the potential for ones to occur, and particularly not ones that are highly unlikely to occur. The latter can be successfully managed by a robust monitoring and adaptive management program consistent with EPA guidance and policy.

The Plan's cost is also disproportional to any increase in overall effectiveness when compared to changes King County recommends to EPA's Plan (see specific comments) and therefore inconsistent with the National Contingency Plan (NCP; 40 CFR 300). The literature does not support the claim that remedies relying more on ENR and MNR have more uncertainty in long-term effectiveness. For example, in a review of large complex sediment cleanup sites in 2007, the National Academy of Sciences concluded that dredging did not meet its cleanup objectives in a majority of the cases studied (NRC 2007). On the other hand, expert review of the use of natural recovery at sediment cleanup sites (ESTCP Project ER-0622; Magar 2009) found that it achieved or was on target to achieve cleanup goals in almost every case where there was enough data to assess. Thus, contrary to the initial impressions held by some, dredging does not provide certainty that the cleanup objectives will be met without further actions.

Figure 1. Comparison of adult tribal Reasonable Maximum Exposure lifetime risks for Waterway remedial alternatives over the course of remedy implementation.



Notes:

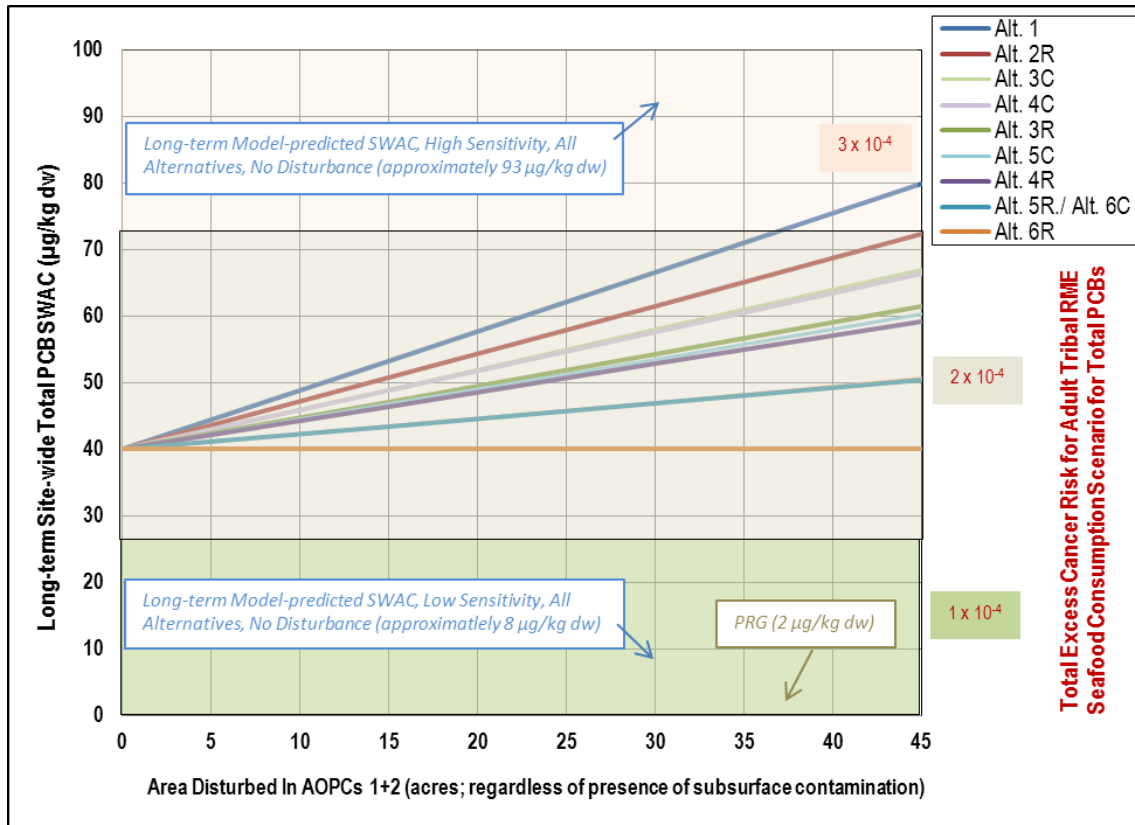
HHRA: Risks calculated as part of the LDW HHRA, based on fish/shellfish tissue collected from the LDW (Windward 2007, 2010).

FS baseline: Risks calculated using the FWM based on the LDW SWAC of 346 µg/kg dw and a water concentration of 1.2 ng/L.

LDW: Risks were estimated based on the construction timeline for the various alternatives, as presented in the LDW FS (AECOM 2010), and assuming a 3-fold increase in the concentration of PCBs in tissue during dredging. The actual increase in tissue concentrations (and therefore risks) during dredging cannot be predicted with certainty, but this magnitude of increase is consistent with what has been observed in other dredging projects. Future tissue concentrations (and the associated risks) were predicted using the FWM based on

the long-term, model-predicted, post-construction SWAC of 40 µg/kg dw and an assumed water concentration of 0.6 ng/L. The accuracy of these future predictions is also uncertain but consistent with the assumptions used for the FS. FS = feasibility study; FWM = food web model; HHRA = human health risk assessment; LDW = Lower Duwamish Waterway; PCB = polychlorinated biphenyl; RME = reasonable maximum exposure; SWAC = spatially weighted average concentration

Figure 2. Estimates of Potential Change in the Site-wide PCB Surface-weighted Average Concentration (SWAC) Resulting from Disturbance of Subsurface Sediments



Notes:

1. For comparison, all alternatives are assumed to have the same long-term SWAC without any disturbance (40 µg/kg dw).
2. Surface water total PCB concentration assumed to be 0.6 ng/L.
3. See Appendix M, Part 5 (Figure 2) for more details.

We also believe the Plan is misleading when it suggests that future exposure could increase surface concentrations but does not similarly account for increases in concentrations from dredging residual releases which have routinely been demonstrated (NRC 2007, Magar 2009, Integral 2012). The analysis presented in Appendix M, Part 2 of the Feasibility Study indicates releases from dredging of 2% to 6% are expected, half of which are predicted to deposit in the Waterway. These dredge residuals can be managed to some degree with placement of a thin-layer of sand but not all residuals stay in the dredge prism and therefore, some releases will deposit further away and cumulatively (all areas dredged are considered) can affect the resulting surface concentrations for the site. The Plan, by concluding that potential exposure of subsurface contamination increases risk and not accounting for residual releases effect on the achievable average surface concentrations, leads to biases in the assessment of long-term effectiveness and permanence.

King County suggests that correctly accounting for both residual releases and the exposure potential would provide greater support for remedies such as the changes King County recommends to EPA's proposed plan. King County does not agree that the Plan provides the best balance of tradeoff in the balancing criteria. Getting started quickly on the cleanup and finishing it as soon as possible is the most effective way to reduce the risk to those who use the Waterway for recreational and cultural fishing. Reducing human health risk as quickly as possible is key to addressing environmental and social justice concerns. The cumulative changes proposed in these comments achieve those objectives.

Promote monitoring programs to assess levels of pollution in surface water and fish tissue before, during and after cleanup, rather than including formal surface water and fish/shellfish tissue cleanup levels

King County strongly supports monitoring of surface water and tissue to track reductions in these media related to sediment cleanup and to document and better understand risk reduction from the remedy and improve risk communication with the public. However, the surface water and tissue PRGs or cleanup levels should not be adopted in the ROD. King County strongly disagrees that these PRGs (or their corresponding cleanup levels in the ROD) should be set for media that are not being directly remediated (i.e., tissue and surface water). To further reduce surface water or tissue concentrations beyond what can be achieved in a sediment cleanup is a broader watershed issue that should be addressed under other regulatory programs.

Surface water and tissue PRGs are not needed because:

1. All of the alternatives analyzed in the Feasibility Study only remediate sediments. Surface water and tissue contaminant concentrations are influenced by factors outside the scope of sediment cleanup and therefore cannot be used to assess whether the cleanup has been carried out as required and RALs are being maintained,
2. They set false expectations of unachievable goals, and
3. They do not provide needed certainty for those conducting the cleanup to determine compliance.

The tissue PRGs listed in the Plan are unnecessary for remedy implementation. They also are misleading to the public by leading to the expectation that natural background conditions can be reached in an urban river like the Waterway. EPA has not provided any record to support its assertion that source control and sediment remediation in the study area will reduce Contaminants of Concern (COC) concentrations in fish and shellfish tissue to the proposed levels. Tissues are not a medium regulated under MTCA, so there is no applicable or relevant and appropriate requirement (ARAR) that drives the need to develop a tissue PRG. The tissue PRGs were not established during the Feasibility Study process, which is not consistent with the National Contingency Plan. Furthermore, the tissue data used to derive the proposed tissue PRGs were deemed by EPA

to be unsuitable for most uses, including background risk estimates that would have required statistical analyses. The dataset was viewed as unsuitable because it: 1) does not provide a representative and random sampling of non-urban fish and shellfish populations in the Puget Sound; 2) is a compilation of data from various studies with differing methods and designs; and 3) has small sample sizes for many of the species/risk-driver contaminants. Therefore, throughout the Feasibility Study process, EPA viewed these data as only suitable for use as general indicators of non-urban background concentrations to which monitoring data could be compared. However, completely contrary to their previous position, EPA set tissue PRGs based on these datasets in the Plan. Nonetheless, EPA acknowledges in Section 7.2, at page 49 of the Plan that these PRGs are uncertain because they are based on a limited dataset. While King County agrees that tissue should be monitored to document and better understand risk reduction from the remedy, tissue PRGs or cleanup levels should not be adopted in the ROD.

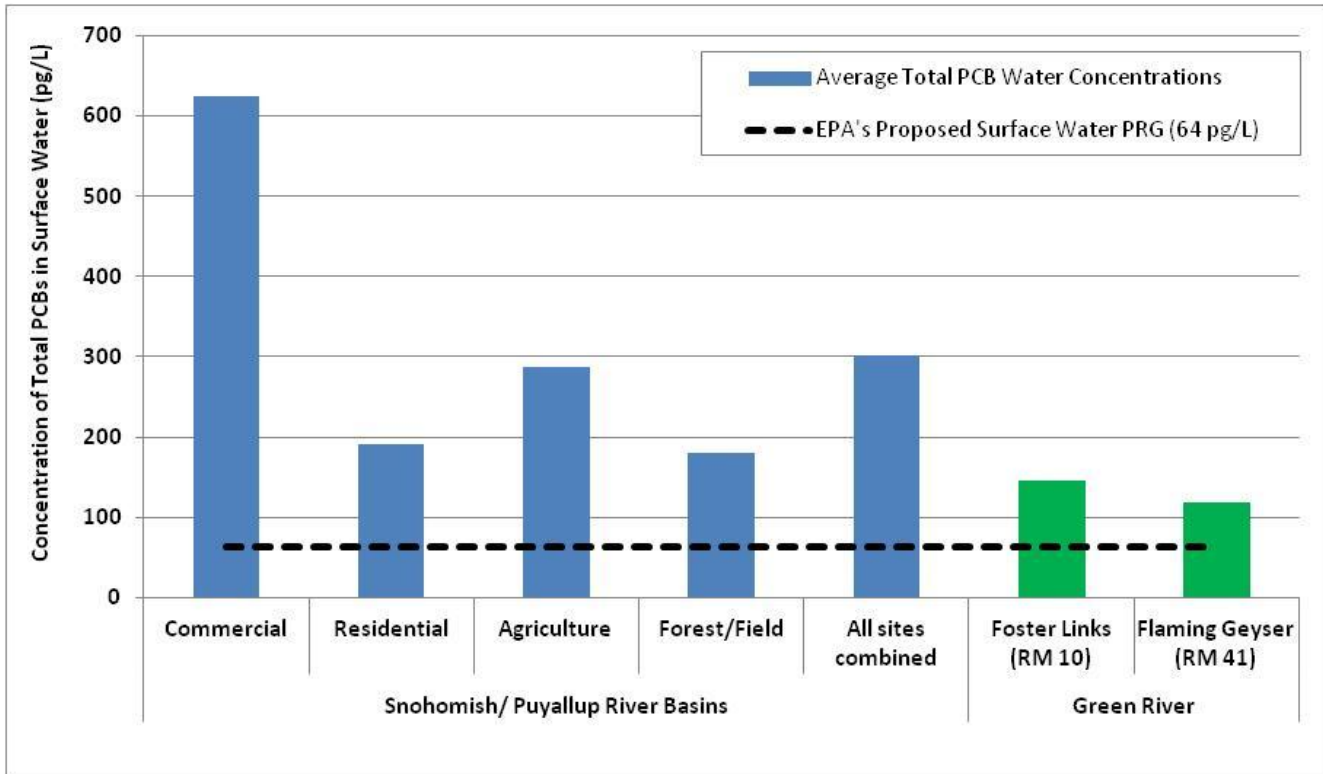
As with the tissue PRGs, the surface water PRG for PCBs is also unnecessary for sediment cleanup remedy implementation. It is misleading to the public by because it cannot be reached in the Waterway through a remedy based on sediment cleanup. The surface water PRG for PCBs is based on the federal recommended human health water quality criteria, which is an applicable or relevant and appropriate requirement (ARAR) for the site. However, Figure 3 demonstrates the water concentrations both upstream and downstream of urban development in the Green River, as well as in other area rivers, exceed this criterion (King County 2013; Herrera Environmental Consultants 2011). Based on this factor alone, the Waterway sediment cleanup and source control actions cannot reduce water concentrations to below the proposed level. In addition, EPA did not follow the process of comparing risk-based value to background in setting a PRG and, therefore, failed to comply with the criteria for setting a PRG (EPA 2005). Therefore, since the Remedial Investigation and Feasibility Study did not address the development of surface water PRGs, any proposed surface water PRG is not consistent with the criteria for developing PRGs and there is no basis to develop them in the Proposed Plan. While we do agree that surface water should be monitored to document and better understand improvements to water quality from the remedy, surface water PRGs should not have been identified in the Plan and cleanup levels should not be adopted in the ROD. Finally, we recognize the PCB human health water quality criterion is an ARAR but because it cannot be met based on upstream inputs alone, EPA waives the ARAR under these circumstances. EPA should apply its own guidance in this situation.

Finally, if these PRGs are retained, there are no specifications in the Plan as to where and how surface water or tissue PRGs is going to be applied to determine compliance. At the very least, application of tissue and water PRGs would need to be at the waterway-wide scale.

Set achievable sediment cleanup levels in the ROD.

There is no evidence that the proposed sediment PRGs, based on natural background concentrations, can be achieved in an urban river. Sediment PRGs at natural background are inconsistent with EPA CERCLA guidance, which adjusts cleanup levels to anthropogenic background. By the time the ROD is issued, these may also not be consistent with the recently revised Sediment Management Standards (SMS), which allow Ecology to set “regional background” values that can be used when natural background concentrations cannot be met and reliably maintained over time. Therefore, a technical impracticability (TI) waiver should be included in the ROD upfront, and the sediment cleanup levels should be set at attainable levels. The proposed natural background-based sediment PRGs set false expectations of unachievable goals and they do not provide needed certainty for those conducting the cleanup to determine compliance. Do not set unachievable sediment cleanup levels in the ROD.

Figure 3. Summer Base Flow Average Surface Water Total PCB Concentrations in the Green River Compared with the Snohomish/Puyallup River Basins



Sources:

Snohomish/Puyallup River Basin data:- Herrera Environmental Consultants. 2011. Toxics in Surface Runoff to Puget Sound: Phase 3 Data and Load Estimates, Ecology Publication 11-03-010, Prepared by Herrera Consultants for WA Dept of Ecology's Environmental Assessment Program.

Green River Data: King County 2013. Lower Duwamish Waterway Source Control: Green River Surface Water Draft Data Report. Prepared by King County Water and Land Resources Division Dept of Natural Resources and Parks, Seattle, WA. [draft]

Note: 1,000 pg/L = 1 ng/L

EPA's policy is to set PRGs which inform selection of cleanup levels at the less stringent of the Risk Based Threshold Concentration or anthropogenic background. Therefore setting at natural background is not consistent with EPA policy (EPA 1988, 1999, 2005). EPA's policy is also not to set unattainable goals (EPA 1999, 2002). As explained below, the Feasibility Study demonstrates the natural background-based PRGs are unattainable. Setting PRGs at natural background is therefore inconsistent with EPA policy in several ways and not consistent with the National Contingency Plan. Finally, they are not consistent with EPA guidance or policy for developing background or setting achievable cleanup goals.

The Plan inappropriately implies that the preferred alternative (or for that matter any other alternatives) combined with source control could achieve sediment PRGs based on natural background in an urban waterway. For example, the objective stated in the second paragraph of section 9.1.2 (page 78 of Plan) misleads the public on likely outcomes of the cleanup and source control actions. The range of bounding conducted during modeling in the Remedial Investigation and Feasibility Study (RI/FS) process covered the

possible future scenarios and none of these model results meet ARARs for PCBs (Windward and QEA 2008; AECOM 2012). The language in Section 7.1, on page 48 of the Plan, suggesting that RI/FS projections did not reflect anticipated improvements in upstream or lateral inputs is incorrect. The data sets were specifically assessed to develop best estimates and low and high estimates that would provide examples of both source control success or the range of potential average inputs that could be possible considering existing data ranges. The sensitivity runs were purposefully designed to determine effects of source control or changes in future inputs. Best estimate and uncertainty bounding runs demonstrate the range that can possibly be achieved in the future. Those runs clearly demonstrate that under any probable future scenario, natural background concentrations for PCBs are not attained. Compared to the uncertainty inherent in setting any background number, anthropogenic or natural, the argument presented in the Plan is not a scientifically sound basis to retain natural background. Any possibly achievable result falls clearly outside of any achievable long-term concentration. Therefore, the ARAR that required the natural background PRGs for sediment should be waived in the ROD and best estimates for long-term equilibrium should instead be adopted as the cleanup levels. An achievable sediment cleanup level will provide the certainty and protectiveness necessary for the consenting parties to support the remedy, including source control implementation.

The cleanup project should not be responsible for risk it cannot affect.

The Plan correctly states that *“all alternatives are predicted by RI/FS models to result in the same long-term risks after cleanup [Section 9.2.1, page 82].”* There is no other technically practicable cleanup that can be designed to improve upon this result because the incoming sediments from the Green River largely determine the long-term surface sediment concentrations regardless of the amount of dredging (after the removal of hot spots). In addition, concentrations of contaminants in surface water from upstream will also affect the fish and shellfish tissue levels and resulting human health risk from consumption of these species. Therefore, it is inappropriate to suggest that the sediment cleanup is responsible for leaving behind unacceptable risk. The cleanup is removing all the risk that can be eliminated by cleanup. The residual risks are not associated with the remaining contamination in the Waterway but are instead associated with background inputs from the Green/Duwamish watershed and other general urban inputs including from atmospheric deposition.

While consuming seafood from the Waterway is predicted to have risks above the Washington State Model Toxics Control Act (MTCA) risk thresholds after the cleanup is complete, it is not possible for any cleanup to reduce them more. To suggest otherwise is misleading to the public and creates unachievable expectations. Both state and federal cleanup laws were designed to handle such situations by acknowledging that cleanup will only address factors related to the site releases and that other factors can result in unacceptable risks. In these situations, institutional controls are used to address such risks as they are here.

While this is never the preferred situation (we would like to think we can always address problems), the fact that cumulative existing exposures in our society leads to a one in three cancer risk clearly demonstrates the complexities of addressing environmental exposures. By not clarifying for the public what the project can accomplish, many obfuscating issues are raised that are not relevant to the remedy selection process. For example, the environmental justice analysis concludes that the human health risk the cleanup Plan cannot address is an impact of the project itself. Please see comments on Appendix B for details. This is clearly not the case, but the same thinking skews the alternatives assessment and rationale of remedy selection.

The ROD needs to clarify the role of the cleanup and its part in the larger context of local, regional, and international pollutant exposure and clearly define what the cleanup addresses. Such clarification will likely assist the public in understanding both the true nature of contributions to residual risk and the other

regulatory approaches to address those issues. At present, the proposed Plan leaves the impression that it is proposing a remedy that fails to achieve a result – when in fact the result is not achievable.

The Feasibility Study overemphasizes selected material facts

EPA selectively emphasizes aspects of the supporting science behind the Feasibility Study and Plan, which indicates a scientific bias and overall leads to unsubstantiated conclusions. For example, EPA's consistent overemphasis on uncertainty in the modeling in the Feasibility Study led to downplaying evidence of natural recovery and overemphasis on long-term effectiveness. In addition, there was a reduced emphasis on short-term effectiveness, and discounting dredge residuals. The cumulative effect of these issues leads to the unsubstantiated rationale for selecting a more conservative remedy in the Plan and the ROD to address the cleanup of sediment contamination in the Waterway. The overemphasis of model uncertainty, long-term effectiveness, and permanence leads one to choose more removal through dredging (at a higher cost) without additional reduction in risk, or consideration of the system's ability to heal itself over time. A superior health protective approach, which the County supports, would be to apply adaptive management to first use targeted removal combined with less invasive technologies with fewer impacts to the community, and to resort to using more impactful technologies only in those instances where adaptive management measures aren't working.

Revise the proposed Plan to produce a more protective remedy

King County requests that EPA make specific refinements to the Preferred Alternative in the ROD. These refinements would reduce impacts to air quality and fish and shellfish tissue and would result in a more cost-effective cleanup that is equally protective. Quickly protecting the people who live, work, and recreate in the Waterway should remain the key priority when selecting a remedy, particularly when the community already has disproportionate health impacts. In addition to those discussed in the comments above, additional changes included in the specific comments below such as the RAL revisions for SMS chemicals. These changes to EPA's Plan will result in the same long-term risks while reducing the period of exposure to risks from construction activities to seafood consumers and community members. The combined changes are similar to those defined by the key elements (LDWG 2011). The county believes these changes to the cleanup Plan detailed in the specific comments below produces the best balance of the balancing criteria and will meet the cleanup objectives the fastest.

General Comments

1. Presenting cost

Please define net present value (NPV) for public. While the definition has value to the agency in comparing alternatives that could take different time horizons to complete, it is not understood or useful to the public. In addition, all costs should be presented in today's dollars throughout the document whenever costs are discussed in NPV so that the public can clearly understand the cost implications. This can be done while also meeting EPA's need to assess the alternatives in NPV.

Specific Comments

Executive Summary

2. Pages iii to iv

Comments on the main body text, relevant to language repeated in this section, are not repeated here. These comments still apply and we request the same revisions as appropriate.

1.0 Introduction

3. Page 1

The site definition is unclear and will result in confusion in determining completion of the remedy leading to uncertainty in the required scope of the remedy. The Plan covers the in-waterway portion of the Waterway, which is the target of the Administrative Order on Consent (Administrative Order) signed by the four parties and the subject of the Remedial Investigation/Feasibility Study (RI/FS) conducted under that Administrative Order. It is not clear how upland sources of contamination are used in or appropriate for the definition of the site under the National Contingency Plan (NCP). A site typically is defined as the area affected by the release of hazardous substances, which under the Administrative Order was defined as the Waterway from bank to bank. The Plan does not specify any actions for areas above top of bank or upland sources, consistent with this definition of site. The site should be defined as the Duwamish Waterway from River Mile 0.0 (southern end of Harbor Island) to 5.0 (just north of the Turning Basin and the Norfolk EAA area) and from mean higher high water (MHHW) level from one side of the bank to another (as noted in Section 5.3).

The Plan says the preferred alternative is a final remedy for the in-Waterway portion of the site. Clarity would be added if this was the final remedy for the site. If the current ambiguous site definition is retained, it is unclear what actions are to be taken for other parts of the site and what the boundaries are for the site. It is also unclear how those undefined portions of the site are to be addressed. Is Ecology's Source Control Strategy (Appendix A) supposed to address this part of the "site"? Existing federal, state and local law is clear that there is existing authority to control sources to address recontamination potential. It does not need to be confounded into the definition of the site. To meet the requirements of CERCLA and the NCP, all these issues would need to be clearly defined, addressed, and a remedy proposed that is consistent with the law. All of these were not identified in the Administrative Order, addressed in the RI/FS, or are part of the proposed Plan for the site. To rectify these discrepancies, please define the site consistent with the Administrative Order and RI/FS as stated above.

4. Page 2, bullet 2

Monitored Natural Recovery (MNR) is not defined consistent with EPA guidance here if it applies to 256 acres of the site. Please see later comments on how to revise to be consistent with EPA guidance and avoid confusion of the public in understanding what the remedy is and how it works. Whenever additional cleanup action is discussed with regards to MNR, the distinction presented in other parts of the Plan (see comments on page 90 and 91) should be included here.

2.0 Site Background

5. Page 5, Lower Duwamish Waterway Topography and History

Whenever referring to Norfolk Combined Sewer Overflow (CSO), it should be Norfolk CSO/Storm Drain (SD). The outfall structure serves both the Norfolk CSO and a public separated storm drainage basin. The Feasibility Study identified the relative solids discharges from the outfall (Appendix C, Part 1), and it is misleading to refer

to this outfall only as a CSO when calculated contributions are primarily from the SD. The change should be made globally to the text for the ROD.

6. Page 5, Contaminant Sources and Waterway Use

The statement identifying 12 of the outfalls as CSOs is incorrect. There are 11 CSOs (2 operated by City and 9 by King County) and 5 emergency overflows (EOFs) (see Section 2.3.3.2 of the LDW FS). Please correct in the ROD.

7. Page 6, Risked Posed by Contaminants

There is no distinction of the relative magnitude or importance of historical and continuing releases to the risks. This is important to the remedy selection particularly when discussing residual risks remaining at the site. Such factors need to be clarified in the ROD as they pertain to cleanup decisions, achievable contaminant levels, and cleanup levels.

8. Page 6, Remedial Investigation/Feasibility Study

The County, City, Port and Boeing initiated the discussions with EPA and Ecology to conduct a cleanup of the Waterway and voluntarily agreed to enter into an Administrative Order on Consent with EPA and Ecology when, after an agreement in principle was reached, the Department of Justice insisted that the site be formally listed under CERCLA. The text should reflect this unique and collaborative effort as it has bearing to the approach and the Early Actions. At a minimum, the language should be modified by replacing “were issued” with “volunteered to enter into.”

2.1 Cleanup Activities Planned and Completed to Date

9. Page 7

The two King County-led cleanups were conducted as interim cleanup actions under Ecology Cleanup Action Plans pursuant to MTCA among other authorities. The Natural Resource Damage Assessment (NRDA) Consent Decree only defined the settlement and how it was to be implemented and was not the authority used to identify, assess, define, and conduct the cleanups. Please clarify when discussing these projects. For example, the first paragraph should be rewritten to say *“The two King County-led cleanups were conducted under a variety of authorities including, but not limited to, MTCA. The NRDA Consent Decree only defined the settlement and how it was to be implemented.”*

10. Page 7, bullet 3

King County participated in the investigation and design for and funded a portion of the Slip 4 cleanup.

2.2 Source Control Investigations and Actions Completed to Date

11. Page 8

The Port of Seattle does not have regulatory authority as do the City or County. Any discussion in the ROD concerning regulatory responsibilities should be clarified appropriately.

12. Page 10, Summary of SC Actions to Date

There is no mention of the County's CSO Control Plan, the Diagonal/Duwamish CSO/SD or Norfolk CSO/SD source control efforts under the NRDA Consent Decree, or the Diagonal SD pipe cleaning which are significant source control efforts in the basin. Refer to such significant efforts in the ROD to provide better context to the status of source control.

3.0 Waterway Setting

13. Page 13, first paragraph

See earlier comment 3 about defining the site from bank to bank. It is confusing when it appears the document is only describing the in-Waterway portion of the site but not any others. The impression is that the site is unbounded. Revise to be consistent with comment 3.

3.1 Land Use

14. Page 14, first paragraph

The text incorrectly implies that Georgetown has a higher minority population than City of Seattle; based on the 2010 Census, they are about the same. South Park has a higher minority population but Georgetown does not. Both have lower median household incomes when compared to City of Seattle. EPA's Environmental Justice (EJ) analysis correctly notes only South Park has significantly larger minority population when compared to City of Seattle. Please correct any discussions in the ROD.

3.2 Waterway Use

15. Page 14, Call-out Box

Salmon Advisories should also be listed and note they are the same for Waterway and south Puget Sound. Otherwise it is confusing to the public that are aware of the advisories how they relate to the site and cleanup decisions.

16. Page 15, Figure 2

Figure 2 should note the "Beach Play" areas are "potential" beach play areas. There is no evidence to suggest all of these areas are currently being used by children 0-6 years of age for recreation.

3.4 Sediment Transport and Deposition

17. Page 16, second paragraph

Please correct discussion of saltwater wedge position prevalence to be consistent with the Remedial Investigation/Feasibility Study as it has direct bearing on scour areas and designation of stability categories. These in turn affect the appropriateness of the proposed remedy.

18. Page 17, third paragraph

Figure 3 does not allow the reader to know where maximum predicted bed scour of 22 cm from high-flows is located in the Waterway. Without context, it is hard to determine appropriateness of the remedy.

3.5 Extent of Contamination

19. Page 20, Table 1, Note text

The Feasibility Study baseline dataset includes all the data post action for Norfolk CSO/SD but not the Boeing Storm Drain cleanup. The note should be corrected to clarify pre-cleanup conditions are included in the Feasibility Study Baseline dataset for Duwamish/Diagonal Early Action Area (EAA) and one small part (Boeing SD cleanup) in the Norfolk EAA. Post-cleanup conditions are used for the remaining Norfolk CSO/SD EEA area and were also used when assigning remedial technologies at Duwamish/Diagonal EAA.

20. Page 20, last paragraph

Please change “animals” in the following sentence to “fish and wildlife” because animals could be confused with benthic organisms. “It is important to note that risks to human health or to ~~animals~~ fish and wildlife coming into contact with sediment or eating fish and shellfish that live in the Waterway are not addressed by either the Sediment Management Standard (SMS) chemical numerical standards or biological criteria.”

21. Page 25, first paragraph

Please provide references to support the statement that shiner surfperch has smaller foraging ranges. LDWG met with various fish experts during the Remedial Investigation development, and none had specifics on shiner surfperch home ranges.

3.6 Background and Upstream Concentrations

22. Water

The water PRG listed in the Plan did not follow the process as described in this paragraph of comparing risk-based value to background in setting a PRG. Based on data collected by King County, upstream Green River total PCB concentrations in whole water samples are above the water PRG listed in the Plan. (Please see second and third big picture comments regarding water PRG). Water background and upstream concentrations are not discussed in this section but are later set as PRGs without this analysis.

23. Page 25, last paragraph

The natural background concentration is being used over anthropogenic background concentrations because MTCA is an ARAR for the site and it requires the use of natural background or PQLs when risk-based values are below background. MTCA provides the methods for defining background concentrations. WAC 173-340-709 states for log-normally distributed data sets, the background value shall be defined as the as the true upper 90th percentile or four times the true 50th percentile, whichever is lower. Therefore, the 95UCL on the mean, currently being used, is not the appropriate metric for determining natural background when based on MTCA requirement. The OSV Bold Survey sediment data for arsenic, PCBs and dioxins/furans are all log-normally

distributed and therefore the rule as specified in MTCA should be used to establish natural background value. Below are the concentrations based on either ProUCL or MTCA Stat as well as the selected value (based on MTCA Stat):

Contaminant	Units	90 th percentile		4x50th Percentile		Selected Value
		ProUCL	MTCA Stat	ProUCL	MTCA Stat	
Arsenic	mg/kg dw	11	12	24	22	12
Total PCBs	µg/kg dw	2.7	3.2	2.6	2.2	2
Dioxins/Furans	ng TEQ/kg dw	2.2	2.8	4.1	4.0	3

For arsenic, a natural background value of 12 milligrams per kilograms dry weight (mg/kg dw) (the 90th percentile value calculated with MTCASat) instead of 7 mg/kg dw (the UCL95 value calculated with ProUCL) should be used. In addition, a concentration of 12 mg/kg dw is more realistic when considering area soil concentrations for arsenic. Soil data in the Ecology EIM Database for undeveloped properties, parks, child care centers, and schools had mean arsenic concentrations of 10.4 mg/kg, UCL95 of 13.0 mg/kg and 90th percentile of 20.5 mg/kg. In addition, the MTCA Method A level for soils is 20 mg/kg. Establishing a PRG below all of these numbers is not technically supportable.

Establishing the PRG as 12 mg/kg dw for arsenic would be more consistent with guidance, would apply ARARs more consistently, and would result in more realistic cleanup levels based on both practicability and cleanup levels set at adjacent upland sites.

24. Page 27, bullets

King County whole-water data (normalized to TSS) should be included as a third dataset used to establish input values from upstream sources. They were considered for the modeling like all other datasets discussed and actually used for the upper bounding BCM sensitivity runs for certain COCs which encompasses the data range and defines the appropriateness and uncertainty of the selected concentration. These are listed in Table 5-2 in the LDW Feasibility Study.

4.1 Human Health Risks

25. Page 30, Inset Box on Human Health Risk

The definition of hazard index should be clarified that it is calculated for individual contaminants with similar toxicological effects.

26. Page 31, first paragraph

The text implies the Human Health Risk Assessment (HHRA) was specifically evaluating risks for low income and minority populations but the HHRA did not discuss populations in this context. HHRA evaluated seafood consumption risks for tribal populations and for Asian Pacific Islander populations and then provided informational risk analysis based on consuming one meal per month of various types of seafood. For the direct contact pathways, risks were evaluated for tribal populations (netfishing and clamming) and for general public through clamming and beach play for children. The HHRA never classified these populations as low income or minority nor has an assessment been conducted to appropriately assess any relationship.

27. Page 31, last paragraph

The definition of HQ in the context of the HHRA is incorrect. For the HHRA, reference dose (RfD) was used. In general, the RfD is an estimate (with uncertainty spanning perhaps an order of magnitude) of a daily exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime. It can be derived from a NOAEL, LOAEL, or benchmark dose, with uncertainty factors generally applied to reflect limitations of the data used. The text implies the dose is the lowest observed adverse effect level but this is not the case for RfDs where a “safe” dose is represented by this value. If it was the lowest observed adverse effect level, it would not be a “safe” dose. Please correct the definition of the HQ to reflect it is the ratio of the exposure concentration or dose to the EPA established “safe” dose or concentration.

28. Page 32, Table 6

The following changes should be made to the table to make it consistent with the HHRA and Feasibility Study:

- Excess cancer risk for adult tribal seafood consumption scenario for other chemicals of concern should be 4 in 10,000 (not 4 in 1,000).
- Upper end of excess cancer risk range for beach play scenario for PCBs should be 6 in 10,000 (not 6 in 100,000).
- Upper end of excess cancer risk range for beach play scenario for cPAHs should be 8 in 100,000 (not 8 in 1,000,000). HQs should be “NC” for cPAHs and dioxins/furans (rather than “<1”) because HQs were not calculated for these chemicals.
- The HQs listed for other for seafood consumption scenarios are incorrect. There are no contaminants with HQs with these values. All other COPCs had HQs <1 except for TBT (HQ = 3) and vanadium (HW = 2) for child tribal scenario. It is misleading to present the sum of HQs for the “other” COCs because they are across multiple endpoints – rather, it is suggested that the highest HQ for an individual “other” COC be presented.
- HQ for PCBs for beach play should be “<1 to 2.” For PCBs for Beach Play, the footnote b should indicate that if the two highest PCB concentrations for Beach 4 were omitted, the HQ would be 2. All other beaches have HQs < 1 (as noted on page 3-11 of the Feasibility Study).

Recommend the Central Tendency (CT) risk results be included to provide critical risk communication information for those who consume a smaller amount of seafood from the Waterway. The preferred alternative can also then be compared to the baseline for the CT scenarios. This is routinely done at other sites and provides valuable context about the populations at risk or not and information to the public to help them determine their own potential risk. It is unfortunate that this important risk communication was not included in the proposed Plan as it is important in the decision making.

5.0 Scope and Role of the Response Action

29. Page 41, first paragraph

For clarity, sediment should be added to “...and 3) cleanup of the remaining sediment contamination in the Waterway, ...” The cleanup action involves remediating the sediment through active and passive remediation.

30. Page 42, Sec 5.3

What is meant by “all anticipated action for the site has been implemented?” The Plan describes the cleanup action as one focused on sediment; it is unclear if this statement refers to more than sediment cleanup actions. The statement should be clarified so that the ROD can consistently show that a sediment cleanup action is intended. Together with the ambiguity in the definition of the site, this can clearly be interpreted as an unbounded requirement. Unless defined actions and measures to determine compliance with those actions are presented in the ROD, parties will simply not be able to determine the nature of the cleanup commitment they are being requested to undertake. For both Public entities and private parties, such a situation would not bound liability for legal reasons and would not be acceptable. It should be noted the NCP states that the purpose of the Plan “is to supplement the Remedial Investigation/Feasibility Study and provide the public with a reasonable opportunity to comment on the preferred alternative for remedial action, as well as alternative plans under consideration, and to participate in the selection of remedial action at the site.” (40 CFR 300.430(f)(2)). The Plan statement described above is not consistent with the NCP requirement. The absence of certainty regarding the focus of the cleanup, coupled with ambiguity about the definition of the site fails to provide a reason for parties to negotiate or sign a commitment to conduct the cleanup.

6.0 Remedial Action Objectives

31. Page 43

RAO1: The RAO language refers to “highest potential exposure”, which could be confused with maximum exposures. CERCLA requires cleanup decisions based on reasonable maximum exposure (RME) not the maximum exposure. This should be clarified. It should also be clarified that reductions in surface water will be related to sediment cleanup actions.

To resolve these problems, King County recommends being clear that only sediment is being remediated and that reduces of contaminant concentrations in surface water and tissue will be only those achieved by the scoped sediment remediation. This can be accomplished by returning to the proposed RAO language in the first draft of the FS. For example, RAO 1 in the draft Feasibility Study stated: “Reduce human health risks associated with consumption of resident LDW seafood by reducing surface sediment concentrations of COCs to protective levels.” It will be simpler to determine if the remedy meets the RAOs in the future, an important step in determining success of the remedy.

7.0 Preliminary Remediation Goals (PRGs)

32. Page 45, second paragraph, last sentence

EPA policy is to set at the less stringent of the Risk Based Threshold Concentration or anthropogenic background. Therefore setting at natural background is not consistent with EPA policy. In addition, it is also EPA policy to not set unattainable goals. As explained in the fourth big picture comment, the Feasibility Study demonstrates the natural background-based PRGs are clearly unattainable and under these situations ARARs are waived. Setting PRGs at natural background is therefore inconsistent with EPA policy in several ways and not consistent with the NCP.

33. Page 45, third paragraph

King County strongly disagrees that PRGs or cleanup levels should be set in the ROD for media that are not being directly remediated. There may be goals the cleanup is attempting to reach (and monitoring to check progress towards those goals), but unless the remedial actions are directly tied to that media, PRGs or cleanup levels are not needed to either implement or complete the sediment cleanup. As discussed in the second big picture comment, EPA has not provided any record to support their assertion that source control and sediment remediation in the study area will reduce COC concentrations in fish and shellfish tissue enough to reach the proposed levels. If PRGs need to be identified to address ARARs, then all unattainable PRGs should be waived in the ROD.

7.1 Sediment PRGs

34. Page 45, Section 7.1 first paragraph

In the last sentence of the paragraph, the reference to human health PRGs is not correct and should be changed to reference the RALs for human health COCs. Please change as noted in italics: “Benthic PRGs (the SQS numerical standards) can be overridden by biological criteria (see What are the SMS? On page 37) unless they are collected with exceedances of *the RALs associated with human health PRGs COCs.*” Also, the sentence that follows is unclear. The compliance for human health PRGs are not measured on a sample specific basis but on a site-wide or area-specific basis; the text seems to imply sample specific because it is tied to the previous sentence about benthic PRGs. Please also change PRGs to RALs, which are assessed on a point-specific basis. Finally, we think it was meant that both RALs apply separately in such a case. The Benthic RALs are still overridden as the location is not creating any benthic impact. If the human health RALs are exceeded, the site exceeds RALs for another RAO. Please clarify.

35. Page 45, last sentence on page

The text notes that for RAO 3, the PRGs must be met at every sampling location. This is unrealistic for an urban waterway and is not required to be in compliance with SMS. Based on previous experience and documented in LDWG memoranda (LDWG 2011; 2012), certain SMS chemicals (phthalates, benzyl alcohol, benzoic acid, and phenolic compounds) are expected to have periodic or localized exceedances of the SQS because of ubiquitous urban contributions, analytical issues, random exceedances, or naturally-occurring contributions.

For ubiquitous urban contaminants such as phthalates, available data (e.g., Duwamish/Diagonal EAA monitoring data) suggest that some SQS exceedances, especially near outfalls, are likely following active remediation and continued source control actions. It is important to allow for higher RALs for these contaminants to balance cleanup benefits with the short-term impacts of active sediment remediation.

If they occur in areas that would not require remedial action for any other reasons, infrequent, random exceedances of contaminants that are often transitory (benzyl alcohol, benzoic acid, phenolic compounds) and that do not indicate a relationship with a controllable source do not need to be actively remediated. Monitoring can be used instead of active cleanup to track the occurrence and distribution of these contaminants over time to determine the most appropriate action.

The ROD should provide flexibility for these chemicals. The SMS provides flexibility in how to address such problems. It does so because of the scientific understanding that a few sediment SQS exceedances, many only periodic, do not impair the ecological function or diversity of the benthic community of the site. Finally, the

PRGs are assessed on a point by point basis but they do not need to meet the SQS at each location to meet the ARAR. Please make consistent with the SMS.

36. Page 46, depth of compliance, first bullet

The intertidal depth of compliance for RAO2 (and thus RAL evaluation depth) should be changed to 30 cm: King County disagrees with the 45 cm point of compliance for the beach play and clamming direct contact scenarios. Based on information regarding the burrowing depth of Eastern soft-shell clams (documented in a July 25, 2011 memorandum from LDWG to EPA), a 30-cm point of compliance is more defensible in the Waterway. In addition, while there are no specific data on how deep children 0-6 yrs of age may dig when playing on the beach, they are not expected to consistently dig down to 45 cm when they play in all intertidal areas. It is overly conservative to have the point of compliance be 45 cm for all intertidal areas based on both expected clamming depths and areas where young children are likely to recreate.

37. Page 46, Table 8.

Based on earlier comments relating to how natural background should be calculated in sediments to meet the ARAR (see comment 23), the arsenic PRG for direct contact should be changed to 12 mg/kg dw and for seafood consumption for dioxins/furans to 3 ng TEQ/kg dw.

38. Page 47

The text notes EPA will use the clam tissue PRG to measure reduction in cPAH and arsenic concentrations in clams. This gives the false impression that sediment cleanup will result in meeting clam tissue PRGs. Based on the Remedial Investigation data and literature data, it is unlikely the major exposure route for clams is the sediment. It is highly possible; the predominant exposure pathway is from the water and upstream inputs may be playing an important role in the tissue accumulation levels. EPA should clarify the text so the public understands cleaning up sediments may not change the clam tissue concentrations significantly. The text indicates EPA is conducting a research study for arsenic and cPAHs but we are only aware of an arsenic study by US Army Corps of Engineers (USACE).

39. Page 48, first paragraph

The language suggesting that Remedial Investigation/Feasibility Study projections did not reflect anticipated improvements in upstream or lateral inputs is misleading. The data sets were specifically assessed to develop best estimates and low and high estimates that would give examples of both source control success or range of real average values compared to existing data ranges. The sensitivity runs were purposefully designed to determine effects of source control or changes in future inputs. Best-professional judgment runs and uncertainty bounding demonstrate the range that can be possibly achieved in the future under any probable circumstances. It clearly demonstrates that under any probable future scenario, natural background concentrations for PCBs are not attained. Compared to the uncertainty inherent in setting any background number, anthropogenic or natural, the argument presented is not a reason to retain natural background. It falls clearly outside of any achievable long-term concentration. Therefore, the natural background PRGs for sediment should be waived in the ROD and best estimates for long-term equilibrium adopted as the cleanup levels.

7.2 Fish and Shellfish Tissue PRGs

40. Page 48 and 49

King County strongly disagrees that tissue PRGs should be identified in the Plan and holds the firm position that tissue cleanup levels should not be adopted in the ROD. They are misleading as they cannot be reached in the Waterway and are unnecessary for remedy implementation. In fact, on page 49, second paragraph, the Plan states that *“{t}hese models predict that background-based fish and shellfish tissue PRGs for PCBs will not be met in the long-term because of the influence of the incoming water and suspended sediments from the Green/Duwamish River, as well as incoming surface water from Elliott Bay. If true this is likely to be the case for tissue PRGs for other COCs as well.”* The Plan’s entire discussion on fish and shellfish tissue PRGs should be limited to identifying what the tissue targets will be for monitoring. Tissues are not a media regulated under MTCA, so there is no ARAR that drives the need to develop them. Since the Remedial Investigation/Feasibility Study did not address the development of tissue PRGs, they are not consistent with the criteria for developing PRGs and there is therefore no basis to develop them in the ROD. Finally, as stated earlier, they are not consistent with EPA guidance or policy for developing background or setting achievable cleanup goals. While we do agree that tissue should be monitored to document and better understand risk reduction from the remedy and used for important risk communication purposes, tissue PRGs or cleanup levels should not be in the ROD.

In addition, the tissue data used to derive the proposed tissue PRGs were deemed by EPA to be unsuitable for most uses, including background risk estimates that would have required statistical analyses. The dataset was viewed as unsuitable because it: 1) does not provide a representative and random sampling of non-urban fish and shellfish populations in the Puget Sound; 2) includes Straits of Georgia and Juan de Fuca data which have different hydrodynamic and chemical influences and are therefore not representative of Puget Sound; 3) is a compilation of data from various studies with differing methods and designs; and 4) has small sample sizes for many of the species/risk-driver contaminants. Therefore, throughout the Remedial Investigation/Feasibility Study process, EPA viewed these data as only suitable for use as general indicators of non-urban background concentrations to which monitoring data could be compared.

There is reference on page 49 second sentence to additional fish and shellfish background data being collected during the remedial design phase. If such data is collected, this dataset would be used for projects throughout Puget Sound and thus should not be the responsibility of this one remedial action. For other comments on tissue PRGs, see big picture comments.

7.3 Surface Water PRG

41. Page 49

King County strongly disagrees with the identification of surface water PRGs for PCBs in the Plan and is strongly opposed to the adoption of surface water cleanup levels in the ROD. They are misleading since they cannot be reached in the Waterway and are unnecessary for remedy implementation. While the human health water quality criteria are an ARAR, the water concentrations upstream of urban development in the Green River, as well as other area rivers, exceed the criteria (King County 2013). This does not meet the criteria for setting a PRG and the ARAR should be waived. In addition, since the Remedial Investigation/Feasibility Study did not address the development of surface water PRGs, they are not consistent with the criteria for developing PRGs and therefore should not have been included in the Plan. Finally, as stated earlier, they are not consistent with EPA guidance or policy for developing background or setting achievable cleanup goals. While we do agree that

surface water should be monitored to document and better understand risk reduction from the remedy, surface water PRGs or cleanup levels should not be in the ROD. See first Big Picture comment above regarding compliance, which expresses the need to allow existing regulatory programs to address what are appropriately Clean Water Act issues.

8.1 Framework for Developing Remedial Alternatives

42. Page 51, first paragraph

Development of remedial alternatives needs to also consider a fifth factor - the risk reduction achieved for the alternatives. Since most of the alternatives achieve the same residual risks, the effects of implementation represent significant differences among alternatives. For example, see comment 79 on RALs evaluation depth and the damage they can cause without any significant gains in risk reduction.

8.2 summary

43. Page 56, bullet on capping

Caps thickness should be left to design for site-specific conditions and needs – not set at 4 feet in clamming area regardless. Some clarification on concerns for designs to address would be appropriate (i.e., what the 4 feet was intended to accomplish).

Why would a pilot study be needed if carbon amendment used underneath the cap? Studies have already shown it is effective and potential impacts to biota would not be expected if under a cap (out of the biologically active zone).

44. Page 57, bullet on MNR

See comments 4 and 70 on definition of MNR and the problems with implementation and compliance they create.

45. Page 57, Section 8.2.1, bullet on monitoring

What “other media” would be monitored outside of sediment, surface water, and tissue to assess site conditions before, during or after cleanup? Need clarification in ROD to guide implementation.

46. Page 57, Section 8.2.1, bullet on Institutional Controls

The text should be clear no alternative was envisioned that could result in unrestricted use of the Waterway; Lake Washington and Elliott Bay have fish consumption advisories.

47. Pages 67-70, alternative descriptions

The descriptions for RAO 1 imply that as more area is actively remediated, greater risk reduction is achieved but there is no risk analysis in the record that supports these statements. In fact, the Feasibility Study and supporting documentation shows similar risk reduction for each alternative. It would be correct to say that the

alternatives (as go up in number) remove more contaminated sediment but this does not mean greater risk reduction is achieved

When discussing Alternatives 5C, 5R and 5R-Treatment, the text should be clear MNR as defined in the Plan does not include contingency actions. These alternatives in the Feasibility Study did not include MNR as defined in EPA guidance but long-term monitoring to assess natural recovery of sediments to the long-term model predicted concentrations.

When discussing Alternative 6C and 6R, it is not clear these take longer than other alternatives to reduce the COC concentration (due to longer construction times). Since this is a critical factor for impacts to the community and continued exposure to existing risk levels, please clarify these issues.

When discussing the preferred alternative, it is not correct to state for RAOs 1, 2 and 4 that greater risk reduction is achieved over 5C because larger volumes of sediment are actively remediated. Removing more sediment may reduce the risk of exposing buried contamination through disturbance events but this does not mean greater reduction in human health or ecological risks. Future exposure analysis in the Feasibility Study (Appendix M, Part 5) demonstrated that for disturbance events to modify the predicted risk a large number of acres would need to have subsurface sediment be continually exposed and exposed concentrations would have to be high to affect the overall exposure such that risk would change significantly (see Figure 2).

48. Figures 14 and 15

Disagree that the time to achieve cleanup objectives for RAO 1 should be presented as the time to long-term model-predicted SWACs (1c in figure 15). The Feasibility Study demonstrated that the RAO 1 risk reduction occurred by steps 1a and 1b in Figure 15. This is the timing that should be used to present the time to achieve seafood consumption risk reductions for alternatives. As EPA represents in this document, it is one of the critical factors for selecting the remedy. Revising to represent risk reduction demonstrates changes King County recommends to EPA's Plan (see specific comments) reaches this goal fastest – not EPA's proposed Plan.

9.1 Threshold Criteria

49. Page 74, Section 9.1.1, second paragraph

The following text should be either deleted or clarified, *“Thus, even if all PRGs are achieved, seafood consumption advisories will be needed to provide adequate protectiveness.”* If the proposed PRGs were actually achieved, based on current practice, the Department of Health would not issue a seafood consumption advisory for PCBs based on non-cancer hazards. Instead, it appears that EPA was attempting to indicate that even at the proposed PRGs, excess cancer risk thresholds would not be met for the reasonable maximum exposure (RME) scenarios. King County suggests that this text be revised to state that *“even if all tissue PRGs are achieved, the excess cancer risks based on the RME seafood consumption scenarios would still be above MTCA risk thresholds and above or within the acceptable risk range for CERCLA (risk relative to the CERCLA risk range is dependent on the scenario). Non-cancer hazards would be less than 1 for the RME scenarios if the tissue PRGs were achieved.”*

50. Page 75, first paragraph

Recommend the text be clarified that crab edible meat (as opposed to the crab butter) would meet the risk threshold for multiple contaminants. It would improve risk communication. In addition, it would help risk communication to provide discussion of CT consumption rates in this section.

51. Page 75, third paragraph

As stated above, time to achieve risk reduction is the more appropriate criteria than time to long-term model-predicted concentrations to compare alternatives.

52. Page 75, last paragraph

The text regarding risk associated with arsenic and direct contact pathways should note that this same risk range exists for background arsenic levels. The text should be clear that even background falls in these risk ranges.

53. Page 78, first paragraph

The italic text should be added and the strikethrough deleted for clarity: "Alternatives 2 to 4 and 5C Plus rely on MNR to SQS to reduce COC concentrations to the SQS, with more reliance *on MNR* (~~and greater uncertainty~~) in lower-numbered alternatives." The reference to greater uncertainty for MNR needs to be removed. The literature does not support the claim that remedies relying more on ENR and MNR have more uncertainty in long-term effectiveness (see third big picture comment). The multiple lines of evidence approach used to determine when and where MNR would be acceptable has demonstrated effectiveness. EPA should not state that MNR provides greater uncertainty.

54. Page 78, Section 9.1.2, first paragraph

If retained, the natural background-based PRGs should be updated based on MTCA method to calculate these concentrations based on WAC 173-340-709. Using the MTCA method for MTCA ARAR, would then result in RAO 2 PRG for arsenic being achieved for Alternatives 2-6 and the preferred alternative.

The last sentence is not correct and misleading. The modeling assumed reductions in water concentrations as the surface sediment was reduced. This reduction could be considered from any reduction of water concentrations over time including inputs from, bedded sediment, lateral, or upstream. Current water data above the urban portion of the watershed, demonstrate that the human health recommended water quality criterion for PCBs are not met and that they are currently in the range of the modeled future water concentrations.

55. Page 78, Section 9.1.2, second paragraph

It is inappropriate to imply the Preferred Alternative or any alternative combined with source control could achieve PRGs based on natural background in an urban waterway (see fourth big picture comment). The objective stated in the paragraph misleads the public on likely outcomes of the cleanup and source control actions.

56. Page 79, second full paragraph

Chinook salmon do not spawn in the Waterway. Please remove “spawning” from the second sentence.

57. Page 79, 3rd full paragraph

King County disagrees that EPA cannot issue a technical impracticability (TI) Waiver at this time. Pursuant to the arguments presented in the Big Picture comments, there is enough data to meet the conditions to be eligible for a TI waiver at this time. Therefore, the TI waivers should be granted in the ROD to allow for achievable cleanup levels to be set.

Also as discussed in the first Big Picture comment, it is only appropriate to start a new process if at some point in the future more actions are determined to be required. This new process would not be a ROD amendment or Explanation of Significant Differences but a new ROD, since the participants under the original ROD would have fulfilled their obligations once the performance criteria have been met. This needs to be clearly stated in the ROD.

58. Page 80, Table 15

Please note that the SMS are rules to implement sediment cleanup in MTCA and they factor three criteria into setting the cleanup level: consideration of net environmental effects, cost, and technical feasibility (WAC173-204-500(4)).

Clarify that the AWQC listed are federal recommendations, not adopted criteria.

9.2 Balancing Criteria

59. Page 82, third paragraph

King County disagrees with the following statement: “Contamination remaining in subsurface sediments and not isolated by a cap would contribute to future risks if they are brought to the surface of the Waterway through natural or man-made events such as earthquakes, vessel scour, or construction activities.” This statement is misleading to the public. As discussed in the third big picture comment, the effects on future risks are dependent on the exposed concentrations, duration of exposure and the degree or amount of area exposed. Remedy decisions should be focused on avoidance of actual risks, not increasing impacts attempting to avoid potential ones. It is also misleading to suggest that future exposure could increase surface concentrations but not similarly account for increases from dredging residual releases which have routinely been demonstrated (NRC 2007, Integral 2012). Together, these decisions bias the assessment of long-term effectiveness and permanence. King County suggests that accounting for these two factors would place greater emphasis on remedies like changes King County recommends to EPA’s proposed plan produces.

60. Page 82, fourth paragraph

The first sentence could be clarified by stating the RALs are evaluated for the top 60 cm in Recovery Category 1 areas rather than saying must be met. This same clarification can be made for later sentences about intertidal RALs.

61. Page 83, second full paragraph

Earlier discussions about the exposure of subsurface contamination not increasing risk, together with adequate design consideration, should preclude any concerns that IC such as environmental covenants or restricted navigation areas may be unreliable in much of the heavily used Waterway. These IC have been shown to be protective in these situations in the past and should be here also.

62. Page 84, second full paragraph

How does dredging reduce mobility of toxicants, as noted in the text? Any discussion of dredging reducing mobility should include the releases documented (3% to 6%) that are made available to organisms (Palermo and Patmont 2007, Bridges et al 2009). Some analysis would be needed to demonstrate that leaving the contamination in-place will release more over time before such conclusions can be stated. King County is not aware of such findings and does not think EPA should factor any such effect from dredging into its analysis.

63. Page 84, Section 9.2.3

The Plan does not sufficiently detail the types of short-term impacts associated with construction activities. For example, there is no mention of amount of habitat impacted or the amount of air quality impacts. Details from Table 10-1 of the Feasibility Study could be included to provide this information. In addition, it is misleading to suggest that mitigation of these impacts of construction factor into the analysis as 1) not all can be mitigated, and 2) such reductions would be proportionate across alternatives and thus not affect the relative assessment of alternatives concerning short-term effectiveness.

9.1 Modifying Criteria

64. Page 86-87 Environmental Justice (EJ) Analysis

See County comments on the EJ analysis appendix and revise the summary accordingly. For a number of reasons stated in those comments, the County disagrees with the analysis which effects its conclusions and recommendations. In addition, EJ is not a modifying criterion under CERCLA. Therefore, the appropriateness of listing recommendations from that analysis is in question.

9.1 Summary of CERCLA Evaluation

65. Page 87-88 General Comment

As discussed in the seventh big picture comment, the cumulative effect of the consistent use of overemphasizing the uncertainty in the modeling in the Feasibility Study led to an overall bias that influences the rationale for selecting a more conservative remedy in the Plan to address the cleanup of contamination in the Waterway. The bias towards model uncertainty, long-term effectiveness, and permanence skews the comparative analysis and leads one to choose more permanent removal without additional reduction in risk, without consideration of the system's ability to heal itself over time, or allow adaptive management to try out less invasive technologies with fewer impacts to the community and fall back to other more impactful technologies in those instances where they aren't working.

66. Page 87, Section 9.4 first paragraph

King County believes EPA can safely say that all alternatives including the preferred alternative cannot meet the human health PRGs based on natural background. Then to clarify for the public, state that PRGs based on natural background need to be waived.

67. Page 88, last sentence

Recommend add the following type of text to the last sentence where discussing when Alternatives 5R, 6C and 6R are not considered for the preferred alternative: “without more risk reduction.” Not only are there longer construction impacts and a considerably higher costs for these alternatives, but they also do not result in additional risk reduction for the associated costs.

10.1 Description of the Preferred Alternative

68. Page 90, 2nd subbullet under bullet 2

The ROD should be clear that maintaining the federal navigation channel and berthing areas are the responsibility of those parties; the cleanup only addresses these if the shoaled material is greater than the RALs. In addition, there is no need to remove this material to more than 2 feet below the authorized navigation channel depth. Two feet is within normal over-dredge tolerances. Adding an additional foot requirement is very costly and not needed to protect the remedy just to allow the U.S. Corps of Engineers to use below-industry standard dredge depth tolerances.

69. Page 90 MNR paragraph

As previously stated, MNR below SQS is confusing and not consistent with EPA guidance. Site-wide monitoring is already required to determine if site-wide concentrations will meet goals. There is no reason to have this area-specific monitoring in addition to the site-wide monitoring already being conducted when there are no area-specific goals to compare to. Also, the last sentence is incorrect. In MNR below SQS, the PRG of the SQS has already been met for RAO 3, so long-term monitoring for SQS compliance cannot apply to all MNR areas. This is an example or the misunderstandings the new definition creates. Please clarify both issues in the ROD.

70. Page 90, last bullet

It should be clarified in the ROD, that areas below SQS are monitored to see if, on a site-wide basis, the sediment concentrations for site-wide PRGs are decreasing. Individual sample locations do not need to all meet the sediment PRGs. King County also expects that some of these areas are already in equilibrium with upstream conditions and therefore further decreases in sediment concentrations for PCBs, dioxins/furans and arsenic are not likely to occur. This sampling is addressed under the next bullet and should be removed from discussion of monitoring in MNR areas.

71. Page 91, first bullet, second subbullet

All of the Early Actions were either dredge, dredge and cap, or cap remedies. Effectiveness was demonstrated by site-specific post-construction monitoring. It is not clear what other evaluation of these areas is needed to

evaluate effectiveness of Early Action areas apart from other remedy areas. It is confusing to suggest that some particular monitoring is needed for early action areas. Please clarify in the ROD.

72. Page 92, first full paragraph

The additional monitoring costs, the effects of the added PRGs, or the strict SQS compliance identified in the preferred alternative are not all captured in the 5C Plus analysis that generated the \$305 NPV cost estimate. Therefore the cost for the proposed Plan is underestimated. Please update the costs accordingly and factor that into remedy selection. These extra costs do not appear to gain any more risk reduction and should be considered disproportionate and not cost-effective.

73. Page 92, second full paragraph

The discussion concerning the Norfolk and Diagonal/Duwamish early Actions is not correct. EPA reviewed and approved the design as a formal part of the Sediment Committee of the Elliott Bay/Duwamish Restoration Program (EBDRP) and was involved in implementation oversight for both projects as consulted by Ecology. As the second project was completed following listing on the NCP and signing of the Administrative Order, it was required to be determined by EPA to be consistent with the expected remedy. As mentioned above, these actions were removal and removal and capping. It is not expected that further actions are needed. Any issues with surface sediments would be due to recontamination from surrounding areas, not remedy failure. That is not to suggest that surrounding areas outside Early Action boundaries may require some remedy, just like other Early Action areas. Please clarify in the ROD that these actions were also consistent with the cleanup Plan and no further action is active remediation is expected.

74. Page 92, third full paragraph

It is concerning to King County that a to-be-developed Memorandum of Understanding will be used to implement the coordination of source control and cleanup actions. Without having the potential to consider this agreement during the proposed Plan review, it is not clear how we are to know what is required under the proposed Plan and be allowed to comment accordingly. This is inconsistent with the NCP.

75. Page 92, last sentence

It is not clear when if ever it would be appropriate for Ecology under source control for the Waterway to target additional chemicals besides the COCs identified in the Plan. It is confusing to discuss what may be done outside of the cleanup needs in the proposed Plan. Suggest such discussions are eliminated from the ROD. If this text is retained for the ROD, it should be clarified the Plan addresses cleanup of sediments.

10.1 Implementation of the Preferred Alternative

76. Page 93, first bullet

There is no allowance for isolated or minor SQS exceedances as written, including when the SQS and CSL are the same value. Isolated or minor SQS exceedances of non-human health risk drivers, should be monitored, not actively remediated. These isolated or minor exceedances would not be expected to adversely affect benthic community ecological function and biodiversity of the Waterway. Per earlier comments, the ROD should allow the existing flexibility in the SMS address such occurrences, not individual exceedances.

77. Page 93, second and sixth bullets

Consistent with earlier comments, King County disagrees that a 45 cm depth of compliance beach play and clamming is needed for human health direct contact risk drivers in the intertidal area (see comments to page 46 of Plan). The intertidal RALs should only apply to the top 30 cm, averaged over this interval.

78. Page 93, third bullet

The RAL for non-human health SMS contaminants should be applied to the top 10 cm in Recovery Category 1 rather than the top 60 cm. SMS applies to the top 10 cm and thus so should the RAL. The subsurface RALs in Recovery Category 1 areas should focus only on the human health risk drivers in the upper 60 cm to protect the bioaccumulation pathways for human health from the seafood consumption pathway. For benthic organisms, the physical act of exposing subsurface contamination will be a greater disruption to the community than any minor effects from temporary SQS exceedances that will recover over time in most of the Waterway.

79. Page 93, seventh bullet

Consistent with earlier comments, King County disagrees that a 60 cm evaluation depth for PCBs is needed in Recovery Category 2 and 3 subtidal areas. The addition would not increase protection of human health. Subsurface contamination has already been factored into active remedial decisions in Category 1 areas where exposure is more likely. The effects on future human health risks are dependent on the exposed concentrations, duration of exposure and the degree or amount of area exposed. It is not a given that risk would change through disturbance events, it is only a potential. Remedy decisions should be focused on avoidance of actual risks, not potential ones. The later can be successfully managed by a robust monitoring and adaptive management program consistent with EPA guidance and policy. Since the deeper evaluation depth for RALs in Recovery Category 2 or 3 is not needed to be protective, simplifying the RALs structure would improve consistency of implementation and likely improve protectiveness. If the deeper evaluation depth is kept, do agree with the 3 time the PCB CSL concentration trigger in Recovery Category 2 or 3.

80. Page 93, fifth bullet

There is no biological reason to require active remediation when the surface sediment concentration is less than 2 times the SQS but above the CSL. Two times the SQS defined concentrations below which are likely to recover to below the SQS in less than 10 years regardless if it is above the CSL. Requiring destruction of a functional benthic community by digging it up when it may only suffer a few years of potentially minor adverse effects is not the best remediation decision for the environment. Please remove the "or the CSL" from this requirement in the ROD as it is less protective.

81. Page 94, first, second and fourth bullets

King County recommends the ROD allow for design flexibility in where ENR can be placed. For example, depending on erosional forces expected, particle sizes or other scour mitigation can be designed that would be protective of ENR layers in some locations. In addition, ENR have been demonstrated to be successfully used in areas with contaminate concentrations greater than the CSL (e.g., Duwamish/Diagonal ENR area).

82. Page 94, sixth bullet

Areas below the SQS, should be designated as site-wide monitoring areas and not MNR (see comment 70). This condition is not needed as it is already covered under long-term monitoring.

In addition to the issue above, there are other reasons MNR below SQS is not the appropriate designation. Some of these areas designated MNR below SQS are already at steady-state and are not expected to change significantly. Due to natural (or analytical) variability, contaminant concentrations may actually increase in some locations with the deposition of sediments from upstream. Existing analyses do not currently support that natural recovery beyond this level should be expected, especially for lower concentration areas. Also, the designation of MNR areas throughout the Waterway will result in the inappropriate application of proprietary institutional controls. MNR areas require a specific set of institutional controls that are part of the long-term management of the location. These are inappropriate in locations where sediment concentrations are not declining, natural recovery is not occurring, and concentrations have generally reached equilibrium based on the processes in the Waterway.

10.3 Rational For... the Preferred Plan

83. Page 94, first paragraph of section

Additional improvements to the Plan can further improve the remedy as outlined in our big picture comments. The cumulative changes proposed in these comments meet the threshold criteria and provides clear improvements in some of the balancing criteria by reducing the construction period by 30 percent. The last sentence should include short-term impacts beyond construction time. These include construction activities impacts to habitat, traffic, and air quality, and increase to fish tissue concentrations.

84. Page 95, first paragraph

As stated earlier, it is misleading to suggest that increases risk of exposure of buried contamination will lead to increases in human health risk or that potential for exposure of buried contamination should be weighted as heavily as actual risks experienced through construction activities (see second and third big picture comments). The result is that EPA's proposed Plan is also disproportional to any increase in long-term effectiveness and permanence when compared to changes King County recommends to EPA's proposed plan.

85. Page 95, first numbered bullet

King County agrees reducing human health risk as quickly as possible is key to reducing environmental and social justice concerns although not all of these concerns are related to or can be addressed by the sediment cleanup. King County's suggested improvements to EPA's preferred alternative does that while having no measurable differences in long-term effectiveness.

86. Page 95, third and fifth numbered bullet

The County agrees the community needs to be closely involved in the development of institutional controls (ICs) in order to make them as effective and inclusive as possible. However, IC are not used to mitigate short-term impacts. In addition, short-term impacts can be reduced the most by selecting shorter construction

periods but this is not stated in the EJ analysis or proposed Plan. Please clarify in the ROD the role of ICs and CERCLA mitigation as it is currently confusing how these will be developed.

87. Page 95, last paragraph

As stated earlier, it is clear that natural background based cleanup levels cannot be met at the site (and likely any urban area). It is misleading to suggest otherwise. Those ARARs should be waived in the ROD and it clarified that is how meeting ARARs.

88. Page 96, first paragraph

The language is too restrictive on long-term monitoring data and “any SQS” exceedance. As noted above, isolated or minor exceedances can meet the ARAR and would not be expected to adversely affect benthic community ecological function and biodiversity of the Waterway. It would be more disruptive to the benthic community to actively remediate these areas. In addition, empirical data and modeling, suggest certain chemicals may recontaminate due to ubiquitous urban sources (e.g., phthalates). Again, these situations can still meet the ARAR though methods required in the SMS. Please clarify in the ROD.

In addition, the proposed Plan states EPA (in consultation) will determine whether further actions can reduce concentrations in sediment, tissue or surface water, and that a ROD amendment or Explanation of Significant Differences would then be required. The Feasibility Study demonstrates that further sediment cleanup actions do not result in further improvements to the long-term predicted concentrations. Therefore, the only further actions potentially needed would be to address implementation deficiencies and are already be required under performance obligations. No further actions can be contemplated that would make further improvements. Therefore, a ROD amendment or Explanation of Significant Differences for those purposes will not be needed and this should be stated in the ROD. Since this is the case, the waivers should be granted upfront in the ROD. If the signing parties have clearly implemented the ROD, there should be clear direction that they have met their obligation. If that is the case, it is only appropriate to start a new process if more actions are determined to be required. Such clarity of responsibility and process is needed to get parties willing to sign up for their share of the cleanup and can only improve the speed and consistency of implementation.

10.3 Preferred Alternative Summary

89. Pages 94-96

In summary, King County’s comments demonstrate that EPA’s preferred alternative does not meet the statements made in this summary. The cumulative changes proposed in these comments will meet the statements in this summary.

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