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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, WA 98101

February 6, 2004

Reply To
Attn Of ECL-111

MEMORANDUM

SUBJECT Region 10 Response to CSTAG Recommendations on the Lower Duwamish Waterway Contaminated Sediment Superfund Site

FROM Allison Hiltner, Remedial Project Manager **/s/ Allison Hiltner**
Region 10

TO Stephen J Ells
John C Meyer, Co-chairs
Contaminated Sediments Technical Advisory Group (CSTAG)

The Lower Duwamish Waterway project team appreciates the opportunity to work with the Contaminated Sediment Technical Advisory Group (CSTAG) and the comments and recommendations provided by the CSTAG to assist the team in addressing the 11 sediment management principles for contaminated sediment Superfund sites Our response to CSTAG's December 2, 2003 recommendations are provided below We will continue to consider these recommendations as we move forward with the Remedial Investigation (RI), Feasibility Study (FS), and cleanup decision-making for the site

Principle #1, Control Sources Early

- *Measure or estimate the amount of key contaminants discharged at the major Combined Sewer Overflows in order to evaluate the potential for recontamination.*

Response The Washington Department of Ecology's (Ecology) January 2004 Source Control Strategy says that "as appropriate, the agencies will collect information and/or make estimates of the volume/weight/cost, etc of contaminants removed, contained, treated or otherwise controlled, in order to help communicate to stakeholders the progress of source control work " Ecology is working with the City and County to develop its area-specific Source Control Action Plan for the ongoing source control work at Duwamish/Diagonal Combined Sewer Overflow (CSO)/Storm Drain (SD), and will consider this comment as this plan is developed The City of Seattle and King County are currently focusing their monitoring efforts on particulate sampling in storm drain lines at key areas of concern in the Duwamish/Diagonal CSO/SD system, but end-of-pipe sampling could also be considered

- *Optimize the areal extent of planned early source control actions, including localized hot spots, in order to reduce recontamination potential and to minimize the scope of any future remedial actions. Post-response monitoring should also be performed in order to evaluate if there is any significant recontamination in these early action areas.*

Response Region 10 agrees. Development of sediment cleanup plans at the Duwamish/Diagonal CSO/SD included expansion of the cleanup area to incorporate an upstream PCB-contaminated area to reduce the potential for recontamination Development of cleanup boundaries at the other early action areas (Boeing Plant 2, Terminal 117, Slip 4) will include an analysis of whether these areas might become recontaminated due to nearby hot spots

The Norfolk CSO cap has been monitored annually since the completion of that cleanup, and similar post-response monitoring plans being developed for Duwamish/Diagonal CSO/SD Other early action cleanups are still in the early phases of development, however, Region 10 agrees with CSTAG that early action cleanup plans should include post-cleanup monitoring to evaluate whether recontamination has occurred

- *Continue to assess other key potential contaminant transport pathways to the LDW (e.g., groundwater at Rhone-Poulenc and PACCAR, 60,000 cubic yards of cement kiln dust in ravine, etc.) in order to evaluate if they are significant contributors to sediment contamination or may affect the effectiveness of any future response actions.*

Response Region 10 agrees Ecology completed its Source Control Strategy for the Lower Duwamish Waterway (LDW) site in January 2004 The Strategy sets forth goals and objectives for the source control program, including

- Identify the nature and extent of ongoing sources of chemicals to LDW sediments that have the potential to exceed Washington State Sediment Management Standards or Lower Duwamish Waterway sediment cleanup goals, in coordination with the timing of sediment cleanups
- Schedule source control activities in the upland basins tributary to contaminated sediment areas to coordinate with sediment cleanup activities
- Use existing administrative and legal authorities to require corrective actions at commercial and industrial businesses, and other facilities in areas tributary to contaminated areas
- Educate business people and residents on ways to reduce pollution from their activities
- Evaluate and monitor the success of source control efforts and revise plans accordingly
- Establish milestones and reporting requirements for source control activities

The Strategy's tiered approach addresses source control needed for early action areas first, and then source control needed to support long-term remedial actions at the site Ecology is currently developing an area-specific Action Plan to document work that is underway in the Duwamish/Diagonal CSO/SD basin, and then will go on to develop and implement Action Plans

for the upland areas draining to the Slip 4, T-117, and Boeing Plant 2 early action areas in 2004/05 These plans will further prioritize source control work needed within these basins, and discuss the authorities under which the source control work will be undertaken

Principle #2, Involve the Community Early and Often

- *CSTAG supports the Region's efforts in providing opportunities for enhanced community involvement.*

- *Consider hosting a technology transfer meeting to describe available remediation and treatment technologies.*

Response Region 10 is considering a number of possible approaches to address the concerns expressed by the community advisory group about remediation and treatment technologies These include

- Including a "lessons learned" from the Duwamish/Diagonal dredging project at one of our quarterly stakeholder meetings, to discuss some of the concerns expressed by the community advisory group about dredging techniques used on that project, and
- Continuing to look for opportunities for technical presentations and discussions with stakeholders about dredging, treatment and other cleanup technologies, either as a separate forum, or in association with public comment periods on cleanup alternatives for the Superfund-lead early actions, or the Boeing Plant 2 RCRA Corrective Action

- *Encourage the RCRA and Superfund programs to continue their attempts to coordinate the community involvement activities associated with all early actions and other planned cleanup activities.*

Response Region 10 agrees Several forums and processes have been initiated to provide updates and coordination on the many technical activities occurring at the Lower Duwamish Waterway These include

- Monthly community involvement coordination meetings with community involvement coordinators from several agencies and the community advisory group, and
- Quarterly project update meetings for all stakeholders on pertinent aspects of the project, including the RI, early actions, RCRA corrective actions, and source control activities The January 30 quarterly meeting included updates on Boeing Plant 2, the Slip 4 and T-117 early actions, and source control activities

In addition, an outreach strategy has been in place for the past year for the Superfund early actions that includes informal reviews of technical documents and update and comment meetings at key milestones This strategy has been shared with the Boeing Plant 2 project manager, and the project manager and community involvement coordinator are considering including some community involvement activities for Boeing Plant 2 that would parallel activities for the

Superfund-lead early actions, such as informal opportunities for the community advisory group to provide comments on some technical documents

Principle #3, Coordinate with States, Local Governments, Tribes, and Natural Resource Trustees

- *CSTAG encourages the Region to continue with these efforts.*

Principle #4, Develop and Refine a Conceptual Site Model that Considers Sediment Stability

- *CSTAG supports the Phase II RI work plan to evaluate the stability of the surficial sediments in the waterway using, as proposed, the in situ inverted flume developed by Ravens and Gschwend (1999). However, since this device only measures the shear stress required to initiate surficial bed sediment movement, this device cannot be used to characterize the erosion potential of sediment with depth. It is recommended that the USACE's Sedflume be used, in addition to the in situ inverted flume, for this purpose.*

Response Region 10 agrees The work plan will be clarified to indicate that both the USACE's Sedflume and the *in situ* inverted flume will be used to evaluate sediment stability

Principle #5, Use an Iterative Approach in a Risk-Based Framework

- *CSTAG supports the Region's efforts in using the Phase I RI data to develop the Phase II RI work plan.*

- *CSTAG recommends that sampling immediately south of Boeing Plant 2 occur as expeditiously as possible in order to determine the most appropriate geographical boundary for the planned early action in this area.*

Response Region 10 agrees EPA has issued a decision regarding the dispute invoked by Boeing regarding the Plant 2 southern boundary In its decision, EPA directed Boeing to collect additional samples south of Boeing's property line EPA has also negotiated a CERCLA Section 106 order with the previous owner of the adjacent facility - Earle M. Jorgensen Company The Order requires that Jorgensen do a study to determine if they are a source of contamination to the Duwamish Waterway, which is likely to include sediment samples around its outfalls. EPA anticipates that both the Boeing and Jorgensen sampling will start by spring 2004

- *Incorporate monitoring results and lessons learned from early actions in future remedy selection and implementation.*

Response Region 10 agrees, and will into consideration lessons learned from early cleanup projects in remedy selection and implementation.

- *CSTAG recognizes that significant efforts have been made toward source control and supports early actions at this site; however CSTAG recommends that the Region evaluate whether downstream early action sites might become recontaminated due to later upstream actions, i.e., CSTAG recommends the Region determine whether contaminated sediment movement under normal flow conditions is significantly affected by net downstream flow, as opposed to tidal flow in both directions.*

Response Region 10 will consider the potential for recontamination when we evaluate cleanup alternatives and the timing of cleanup in the early action areas Some rudimentary sediment transport modeling was done for the Duwamish/Diagonal CSO/SD cleanup, and the only area noted of concern for recontamination (aside from the CSO and SD themselves, which are being addressed through the source control program) was a hot spot immediately upstream of the cleanup area, which was subsequently incorporated into the cleanup Early results from Duwamish/Diagonal post-cleanup monitoring and from the RI sediment transport studies can be taken into consideration to the extent that they are available prior to implementation of other early action cleanups

Principle #6, Carefully Evaluate the Assumptions and Uncertainties Associated with Site Characterization Data and Site Models

- *For the Phase II PCB analyses, use congener-specific analyses to ensure a statistically significant correlation with Aroclor data and be mindful of possible phthalate analytical interference. CSTAG is concerned that the currently proposed 13 samples may not be sufficient to achieve a correlation.*

Response Region 10 agrees, and we are working with the Lower Duwamish Waterway Group (LDWG) to increase the number of samples analyzed for both PCB Aroclors and congeners In addition, a portion of all sediment and tissue samples analyzed for PCB Aroclors will be archived for potential future congener analysis, in case the samples that are analyzed are insufficient to achieve a correlation We will work with our Quality Assurance Office as we develop Quality Assurance Project Plans to ensure that we obtain good PCB data for this project, including being mindful of the potential for phthalate interference

- *Establish appropriate background concentrations in relevant media such as sediment and/or aquatic biota for the Contaminants of Concern that are expected to be the risk drivers.*

Response We plan to use new and existing sediment quality data south of the Norfolk CSO (our southernmost known source) to determine the upstream site boundary and to establish upstream background concentrations for the site We will do more extensive background sampling (and evaluation of existing regional data) for arsenic (in tissue and sediments) and dioxin (in

sediments), two contaminants that are likely to show a significant risk at background concentrations

- *Taking into consideration the known spatial variability in surficial sediment characteristics (e.g., grain size distributions) at this site, the proposed Phase II RI sampling plan to characterize contamination at depth and resuspension potential using 20 cores is inadequate. It is recommended that at least 40 cores be collected to more completely characterize the contamination at depth and the resuspension potential. The locations for the cores should be selected based primarily on the hydrodynamic and sedimentary regimes of the waterway to insure that cores are collected in both depositional as well as potentially erosional areas.*

Response Region 10 will take this comment into consideration when developing a sampling plan for subsurface sediment sampling We agree that cores should be collected in erosional areas, areas that might be depositional at lower flows but erosional at higher flows, and in depositional areas that may be subject to cleanup

Principle #7, Select Site-specific, Project-specific, and Sediment-specific Risk Management Approaches that will Achieve Risk-based Goals

- *If the State of Washington's sediment criteria for the protection of benthic organisms are used as the basis of sediment cleanup levels, consider using a statistically-based method to confirm that the sediments remaining after an action meet the criteria. If any site sediment cleanup levels are based on protection of ecological receptors that are motile or migrate (not necessarily out of the site), consider using a surface-weighted averaging approach.*

Response Region 10 will take this comment into consideration when developing cleanup levels and long-term monitoring plans for the site

- *Be realistic about the timing and effectiveness of source control actions when developing remediation goals and cleanup levels.*

Response Region will take this comment into consideration when developing remediation goals and cleanup levels for the site

Principle #8, Ensure that Sediment Cleanup Levels are Clearly Tied to Risk Management Goals
The CSTAG will evaluate consistency with this principle later in the process

Principle #9, Maximize the Effectiveness of Institutional Controls and Recognize their Limitations

- *Evaluate whether ICs are necessary to protect the integrity of the Norfolk CSO cap.*

Response Most of the land on which the Norfolk CSO cap is placed is owned and managed by Washington Department of Natural Resources (WDNR) The Norfolk CSO cap is upstream of the navigation channel but may be subject to occasional recreational boat traffic EPA and Ecology will consult with WDNR regarding the need for institutional controls (ICs) other than WDNR management of this cap A small portion of the cap is privately owned EPA and Ecology will consider the need for ICs on this portion as well

Principle #10, Design Remedies to Minimize Short-term Risks while Achieving Long-term Protection *The CSTAG will evaluate consistency with this principle later in the process.*

Principle #11, Monitor During and After Sediment Remediation to Assess and Document Remedy Effectiveness *The CSTAG will evaluate consistency with this principle later in the process.*

If you have any questions about any of these responses please call Allison Hiltner at (206) 553-2140 regarding the RI/FS, and Kris Flint (206) 553-8155 regarding source control activities

cc Michael Gearheard, Region 10
Lori Cohen, Region 10
Duwamish project team