

Memorandum

To Washington State Department of Ecology, at Page 1
RuleUpdate@ecy.wa.gov

CC Chance Asher – Washington State Department of Ecology

Subject AECOM Comments on the Proposed SMS Rule Revisions

From Anne Fitzpatrick (contact); AECOM Technical Services

Date January 17, 2012

AECOM is providing the following general comments on four key concepts of the proposed Sediment Management Standards (SMS) rule revisions. In addition to these general comments, AECOM is also providing specific comments on the proposed revisions using Ecology's Rule Review/Comment Form (see Attachment 1). In general, the rule revisions are thorough and thoughtful, and we appreciate the level of effort Ecology has put into this process. We appreciate the opportunity to review the proposed revisions, and look forward to working with Ecology, stakeholders, and community members to develop a final revised SMS rule that provides a clear, efficient, and achievable process for implementing sediment cleanup actions within our waterways. Please feel free to contact me at 206-624-9349 if you would like to discuss or clarify our comments.

Setting the Maximum Allowable Level (Upper Bound)

We agree with and support the concept of a two-tiered evaluation for both ecological and human health. However, the maximum allowable level (MAL) needs to be implementable and practicably achievable. For example, the *Lower Duwamish Waterway Feasibility Study* (AECOM 2010) has demonstrated that a MAL, calculated per the proposed language, cannot be achieved using technically implementable actions. Also, a MAL calculated using a hazard quotient (HQ) of one (1) or total site risk of 10^{-5} using default consumption rates will be impractical to meet regardless of the remedial action taken for many chemicals (e.g., dioxins and PCBs). This effectively eliminates the usefulness of a tiered approach.

We believe the MAL should be an achievable endpoint. We suggest allowing a total site risk as high as 10^{-4} . This approach would provide a reasonable range within which to set a site-specific cleanup standard that is actually achievable in the near term, provide incentive for early cleanup actions, and allow for progression toward the Sediment Cleanup Objective over the longer term. In summary, we recommend the following changes to the MAL:

- The human health risk range should match the acceptable CERCLA risk range of 10^{-6} to 10^{-4} risk, especially for certain chemicals. The MAL should be set to 10^{-4} risk.
- An HQ >1, based on a range of seafood consumption rates that include recreational (occasional) fishing (otherwise there is no difference between the MAL and the Sediment Cleanup Objective).

- Regional background as an area-weighted average that includes contributions from non-point sources. It should represent the limit of technical feasibility (the best we can do). There is no point to having a regional background level that cannot be achieved.
- Consider using modeling or other endpoints such as regional fish tissue concentrations, to determine regional background. Keep the cleanup level determination flexible so that other methods and endpoints can be considered.
- Limit the evaluation to only those contaminants with human health risks.

Interim vs. Final Cleanup under SMS

We believe that SMS should contain mechanisms to allow for an interim action or a final cleanup action. We also believe that Institutional Controls (ICs), when combined with active remedies, should be acceptable for meeting cleanup objectives. Under MTCA, cleanups are considered interim until the cleanup levels are achieved (in this case, until natural background levels are achieved). These “aspirational” goals may never be achieved in an urban setting. The rule and guidance needs to include a workable solution. The current SMS rule does not have a mechanism for interim actions.

The two scenarios presented by Ecology at the November 18, 2011 technical meeting were 1) a sediment site unit (with discrete and identifiable chemical signatures and sources), and 2) multiple sediment site units that fall within a larger bay-wide site (with some co-mingled signatures). We like the concept of site units, but need to understand how cleanups can be finalized in them. In the first scenario, a cleanup is considered “final” when sediment and PLP point sources can be controlled and sediment remedial is completed through active and/or passive actions to levels below the sediment cleanup standard. Institutional controls may be needed to control low levels of residual risk within the site unit. Further, we agree with Ecology’s approach for addressing recontamination with a remediated site unit (i.e., no further responsibility by PLP if recontamination is from off-site or non-point sources).

In the second scenario, interim actions can promote an immediate reduction in concentration when site-specific or bay-wide sources cannot be controlled to levels below the sediment cleanup standard. For units within a bay-wide site, we suggest SMS stipulate that institutional controls (ICs) can be used to mitigate risk above the sediment quality objective if the remedy is found to be permanent to the maximum extent practicable. This would allow for a final action at a site, such as the Lower Duwamish Waterway, where the sediment quality objective cannot be met regardless of the remedial action taken and degree of point source control. Without allowing ICs to be used as a means for achieving compliance, all sediment remedial actions will necessarily have to be considered interim actions. This does not provide any incentive for PLPs to initiate site unit cleanup, much less remediate the site below the maximum allowable level.

Liability Management and Site Closure

We support the idea of both partial and full liability settlement options as part of site closure. We encourage Ecology to maintain flexibility and streamline the process for determining settlement options for both individual site units and bay-wide sites. We support the idea of allowing PLPs to obtain a release from liability for larger bay-wide sites without the participation and/or settlement of all potential bay-wide PLPs. This flexibility provides incentives for PLPs to move forward with cleanup actions and provide a level of certainty for future potential liability.

The timing of site closure, and release from liability, should also remain flexible. As discussed in the December 8, 2011 Ecology meeting, if a PLP completes remedial actions within their site unit and contributes incrementally more effort to the bay-wide site, can they settle their liability ahead of a large multi-PRP allocation process? We are concerned that the bay-wide settlement options presented in the Ecology meeting would take several years or decades to implement because of the quantity of data and legal process required.

Source Control

As discussed in the December 8, 2011 meeting, Ecology is looking to integrate cleanup and source control across Ecology programs, including the water quality program. For example, NPDES permits may include more contaminants that match those found in receiving sediments, and more impaired water bodies are expected when human health water quality data are considered. However, we are concerned that NPDES for permitted discharges represent only a small portion of the ongoing lateral loads. Chemical input from ongoing sources is a larger urban issue with numerous non-point source contributions that are not easily controllable. We want to control sources, but NPDES permits may not be the best mechanism for doing this (Ecology 2011). Site inspections, best management practices, and other physical-based controls may be more effective, and best managed by the water quality program. MTCA is not an appropriate tool for evaluating ongoing bay-wide sources. For example, the situation becomes complicated when affected site owners lease property to businesses that obtain their own NPDES permit. Businesses will not lease from properties where their NPDES permit discharge limits will be lower than other properties, and property owners will not have direct control over discharge concentrations. Who becomes liable? How will source control requirements change as bay-wide concentrations decrease? Some of our recommendations include:

- Use the existing water quality program (site inspections, BMPs) to improve source control efforts.
- Recontamination should be defined as concentrations above a sediment remedial action level or MAL, and not the sediment cleanup objective. Compliance monitoring should include adequate flexibility such that periodic and random exceedances do not trigger additional cleanup actions.
- Chemicals with typical ongoing urban signatures, such as bis(2-ethylhexyl)phthalate and perhaps low level dioxins, should be handled differently than legacy chemicals.
- Compliance monitoring should start at the end of remedy construction, not the start of construction.
- Sediment criteria for listing an area on the 303D list as an impaired water body should be limited to the existing SQS/CSL sediment criteria. The SQS/CSL are point-based criteria reflective of localized conditions around an outfall. We do not recommend including SWAC-based or area-based screening levels, unless dilution zone/point of compliance is considered.
- NPDES allows compliance at the end of the allowable discharge zone, if human health criteria are considered, then similar compliance allowances should be considered for sediment with larger area-wide exposure areas.
- Several lines of evidence (modeling, data) should be encouraged when evaluating if source control is sufficient and what is achievable.

Other Issues

Specific comments described separately (see Attachment 1) for submittal to Ecology include several important issues highlighted below.

- The use of a Remedial Action Level (RAL) or remediation level (RL) should be defined and incorporated into the proposed framework. The RAL would be the point concentration above which sediment is actively remediated.
- Discuss the concept of spatially-weighted average concentrations (SWACs) that are determined over the exposure area of interest. This is particularly important for human health and some ecological endpoints.
- Guidance should include a definition of monitored natural recovery (MNR) and incorporate adequate flexibility in the selection of cleanup standards and actions to allow MNR for applicable sites.
- Multiple and preliminary cleanup standards should be considered in the development of alternatives as a tool to evaluate net environment, cost, and technical practicability. It can be a component of an alternative, or used a metric(s) in the evaluation of alternatives. They may be necessary to address different chemicals, pathways, receptors, spatial areas, and timeframes for recovery for a site.

Other important issues for consideration by Ecology in the SMS rule revisions include:

- Construct of compliance monitoring and modification of MTCA's three-part rule for sediment.
- Incorporation of the SMS net environmental benefit/cost analysis for selecting the cleanup standard into the MTCA Disproportionate Cost Analysis (DCA) for evaluating remedial alternatives.

We appreciate the level of effort Ecology has put into the rule revisions and efforts to streamline the process. Please do not hesitate to call or contact Anne Fitzpatrick at 206-624-9349 or Anne.Fitzpatrick@aecom.com for additional clarification with this memo or comment form.

References

AECOM 2010. *Lower Duwamish Waterway Feasibility Study. Draft Final*. Prepared for U.S. EPA and Washington State Department of Ecology. Prepared for the Lower Duwamish Waterway Group. Seattle, Washington. October 25, 2010.

Ecology 2011. *Surface Sediment Sampling at Outfalls in the Lower Duwamish Waterway, Seattle, WA. Data Report*. Prepared by the Washington State Department of Ecology. October 2011.

**Washington State Department of Ecology
Sediment Management Standards Rule
Review/Comment Form**

Reviewer Name:		AECOM , 710 Second Ave, Suite 1000, Seattle, WA 98104 Anne Fitzpatrick (contact), Merv Coover, Halah Voges, Greg Brunkhorst, Jason Palmer, Shannon Ashurst, John Ryan (206)-624-9349
Submittal Date:		January 16, 2012
Sections of Document Reviewed:		SMS sections 173-204-200, -500 - 590
Document Version/Date:		Draft Revisions, Part V and Definitions, dated October 2011 Preliminary Draft
Page Number	Line Number	Comment
9	9	Definitions. Under the term “active cleanup action” add the word “monitored” in front of “natural recovery” and add to the end of the sentence that passive actions “can be part of an overall cleanup”.
11	68	Definitions. Suggest adding to the definition of ENR “ENR means.....to reduce the toxicity, concentration, <u>or change the physical characteristics</u> of contaminated sediment.” ENR material is often coarser-grained than the native underlying sediment thereby placement changes the physical properties and scour potential of the bedded sediment.
11	83	Definitions. Delete the word “action.” The maximum allowable level can be met using monitored natural recovery.
12	99	Definitions. Include new definition from monitored natural recovery: “monitored natural recovery is a passive remedial technology wherein the natural recovery of sediment is monitored in an area that is above cleanup standards but below remedial action levels. Monitoring is required to ensure effectiveness.” (173-204-200) Include: “remedial action levels” means the concentration above which active remediation takes place.
13	138	Definitions. The definition of regional background should also include non-point source contributions. Edit text to “Calculation of regional background must exclude areas with an elevated level of contamination due to the direct influence of known or suspected contaminant (point) sources including, but not limited to, areas within a sediment cleanup unit. <u>However, contribution from ambient, non-point sources is expected.</u> ”
13	165	Definitions. The definition of sediment should also include “that it supports or could support aquatic biota. Sediment is placed by water-borne processes.” (173-204-200)
13	165	Definitions. Suggest adding a definition of “remedial action levels” or “remediation levels” above which active remediation takes place. This term will help clarify the process of developing remedial alternatives. (173-204-200)
14	196	Clarify that the sediment recovery zones are above the sediment quality objective <u>but below the cleanup standard</u> . We assume this is distinct from monitored natural recovery which is above the cleanup standard. However, why was the text changed from sediment quality standard to sediment quality objective? (173-204-200)
17	44	Agree – clause acknowledging that Agency cleanup process expectations may not be applicable to all sites is appropriate and necessary. (173-204-500(4))
17	59	Agree – when recontamination is not due to the party who conducted the initial cleanup, the party that conducted the initial cleanup should not be held responsible for subsequent cleanup. (173-204-500(4)(b))
18	69	Cleanup Process Expectations. Edit text to read “. to achieve restoration within a time frame of 10 years starting <u>from the end of construction</u> ”. The time clock should start at the end of construction, not at the beginning of cleanup because elevated concentrations will be expected during construction. At a minimum, suggest “from the start or end of construction depending on site conditions” and keeping it flexible to be determined on a site-specific basis. (173-204-500 (4)(c))
19	109	Edit text to read “. . .Sediment cleanup standards define the chemical concentrations or biological effects levels that that must be achieved through active <u>or passive</u> cleanup measures.” This definition allows MNR to be adopted as appropriate to meet the standard. (173-204-500(5)(b))
19	125	Applicability of New Cleanup Standards. Suggest text edit to read “(b) Cleanup standards determined in (a) of this subsection shall not be subject to <u>modifications that require</u> further cleanup action due solely to subsequent amendments to the provisions in this chapter on cleanup standards, unless the department

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		determines that the previous cleanup action is no longer sufficiently protective of human health and the environment. At a minimum, suggest adding to the end "... <u>based on monitoring results</u> ". Although part (a) suggests that sites already having Ecology-approved cleanup standards will be grandfathered in, part (b) opens the door to agency re-evaluation that could force additional cleanup to the newest, amended standards/requirements. It would leave uncertainty with the liable party. (173-204-500(6)).
33	84	Insert "or sediment cleanup unit" following "WAC 173-204-570." When natural background defines the sediment quality objective, then a single "site" will be unreasonably large and the sediment cleanup unit will need to be shown. (173-204-560(4)(b)(ii))
33	86	Include "proposed or potential" in front of "sediment cleanup standards." The sediment cleanup standards will not be determined during the RI stage. Different cleanup standards may be used for different alternatives at the FS stage and during the evaluation of alternatives. (173-204-560(4)(b)(ii)(A))
35	151	Include the parenthetical remark "(sediment cleanup standards may vary by cleanup action alternative)". (173-204-560(5)(a)(iii))
40	11	Sediment Cleanup Standard. To avoid confusion in the use of terms, like the MAL, we recommend the following text edit: "The sediment cleanup standard defines the maximum allowed chemical concentration and level of biological effects permissible at the cleanup site to be achieved by year ten after start the end of the <u>active</u> cleanup."
40	33	Sediment Cleanup Standard. Insert "(d) The department recognizes that for some sites it may not be practicable to comply with the maximum allowable level. In these cases, the sediment cleanup standard (and the MAL) may be adjusted upwards based on practicability as determined in WAC 173-204-580." (173-204-570(2)(d))
42	32	Maximum Allowable Level based on HH Risks. Edit text to read "Compliance with this provision shall be based on a hazard quotient of one (1) <u>or possibly higher depending on the chemical, site conditions, or other risk endpoints. The maximum allowable level for any chemical, even when site conditions are considered, will be no higher than an HQ of ten (10). The maximum allowable level, even when site conditions are considered, will be no higher than for protection of recreational consumers.</u> " If both the objective and maximum allowable levels are the same HQ – what is the point? We know that an HQ = 1 cannot be met for many chemicals. (173-204-571(3)(a))
43	37	Maximum Allowable Level based on HH Risks. Edit text to read "Compliance with this provision shall be based on total site risk <u>of no higher than one-in-one thousand (1 x 10⁻⁴).</u> " The allowable risk range should be consistent with CERCLA. We know that a 10 ⁻⁴ risk level cannot be met for many chemicals and the MAL should maintain some flexibility. (173-204-571(3)(b))
43	41	Maximum Allowable Level based on HH Risks. Edit text to read "The sediment cleanup standard or maximum allowable level shall not be established at concentrations <u>that would result in area-wide concentrations</u> above the regional background concentrations as defined in WAC 173-204-200....." This part should acknowledge differences between point-based and SWAC-based concentrations. (173-204-571(3)(c))
43	42	Change "above" to "below" for consistency with Ecology figures. (173-204-571(3)(c))
49	1	Cleanup Screening Levels and Sediment Quality Standards based on Benthic toxicity in Freshwater Sediments. Proposed rule revisions look fine.
39	13	Edit text to read "...to be achieved by year ten after the start completion of the <u>active</u> cleanup". The reduced in-water work periods mandated by fish windows often extends cleanup actions into multiple

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		years. This creates a bias against projects conducting more extensive active cleanup measures.
41	60	Maximum Allowable Level. "...the maximum allowable level shall be at least as stringent as all of the following:" This text, combined with the bullets that follow, is inconsistent with Figure 1 – Ecology Cleanup Program Proposal, which suggests the maximum allowable level would be the <u>highest</u> of 10 ⁻⁵ risk based concentrations, regional background, or the PQL. Suggest text edit of "...the maximum allowable level shall be at least as stringent as the <u>highest of all of</u> the following:"
41	68-71	Maximum Allowable Level. "Sediment cleanup standards developed under subsection (4) of this section shall not be established at concentrations above regional background concentrations as defined in WAC 173-204-200 or the practical quantitation limit, whichever is higher." This text is inconsistent with Figure 1 – Ecology Cleanup Program Proposal, which suggests the maximum allowable level would be the <u>highest</u> of 10 ⁻⁵ risk based concentrations, regional background, or the PQL.
52	29	Selection of Cleanup Actions. Delete 173-204-580(3)(d). "Permanent to maximum extent practicable" should not be a minimum requirement, because it would result in only one alternative passing the minimum requirements. Instead, it is an evaluation criterion and the idea is already embedded in WAC 173-204-580(4)(a)-(o).
52	30	Selection of Cleanup Actions. Delete 173-204-580(3)(e). Restoration time frame is already addressed 173-204-580(4)(g).
53	53	Selection of Cleanup Actions. Delete 173-204-580(4)(b). Meeting cleanup standards is already a "minimum requirement".
53	54-55	Selection of Cleanup Actions. Delete 173-204-580(4)(c). ARARs are already a "minimum requirement".
53	46	Selection of Cleanup Actions. The first cleanup selection criteria "overall protection of human health and the environment" 173-204-580(4)(a) seems redundant with criteria listed later. It is unclear whether it is a threshold requirement (or minimum requirement), or unique criterion intended to describe the magnitude of residual risks. To prevent confusion, we recommend one of two options: (1) if the criterion is equally weighted with the other criteria, then change the name of the criterion from "overall protection of human health and the environment" to " <u>magnitude of residual risks</u> ", or (2) if the criterion is a compilation of the other criteria, then delete the detail listed in 173-204-580(4)(a).
54	73-74	Selection of Cleanup Actions. Delete 173-204-580(4)(j). Monitoring is already a "minimum requirement".
56	19	Sediment Recovery Zones. Include in definition: "the "sediment recovery zone" generally has concentrations between the sediment cleanup standards and the sediment quality objectives. (173-204-590(3))
58	59	Sediment Recovery Zones Delete underlined portions of item #5 that state "(5) Sediment recovery zone duration. Except as provided in (a) of this subsection, <u>sediment recovery zones longer than 10 years shall not be authorized by the department.</u> " If the definition for a SRZ is changed to areas above the SQO (instead of the cleanup standard), it will take longer than 10 years to reach this goal, if ever. It is not consistent with Ecology's cleanup standard graphic. Instead, rely on subsection "c" for determination. (173-204-590(5))

Last revised by AGF on 01/17/12: Saved in project w/ MTCA-SMS revisions/AECOM responses 2012/ SMS Rule CommentForm