MTCA / SMS Advisory Group & Sediment Workgroup

Meeting Notes

Friday, December 18th, 2009

Port of Tacoma Fabulich Center, 09:00 – 15:30 Hrs

Note to the reader and sediment workgroup members – easel notes appended (p.23)

December 18th , 2009 Meeting Synopsis / Summary

This was the second MTCA / SMS advisory group meeting. Three topics were previewed and discussed: human health and "background " issues for sediment cleanups, remedy selection revisions (MTCA Section 360) and vapor intrusion exposure pathway (VI).

For the defining background (sediments) preview, Ecology presented two options: 1) set sediment cleanup standards using use an approach similar to the current MTCA regulation (highest of natural background, practical quantitation limit and or 10^{-6} risk level), or 2) set sediment cleanup standards within a range. The upper end of the range uses a new definition that incorporates "regional" background for sediments. Most of the discussion focused on what you cleanup to and how to define background. Several group members suggested that Ecology collect data and conduct case history studies on how the various background schemes would play out. There was disagreement about what level you clean up to. Many felt that natural background and MTCA levels of protection were not implementable for sediment cleanups. Some felt that you should clean up to area background to reduce the overall risk; however, others felt this was not practicable because of potential recontamination. Others felt that you should cleanup to regional background because of re-contamination from on-going sources such as stormwater. The need for source control to reduce sources of contaminants on a watershed level was frequently mentioned. Low sediment cleanup levels without source control are not sustainable, and this issue is bigger than just cleanup activities. It (source control) needs a bigger policy approach (within and outside the agency). Lastly, several expressed the need for more certainty determining in cleanup levels and finality in resolving liability sediment cleanups. In the end, it was suggested that Ecology should provide examples of past sediments cleanups. It was also suggested that Ecology should clarify the "Option 2" regional background proposal.

Proposed remedy selection revisions (MTCA Section 360) - this was more "FYI" and no decisions have been made. The proposed Section 360 changes are designed to clarify the current rule language and hopefully speed-up cleanups, which take too long. Some changes to MTCA Section 350 (site characterization) were also presented. Concerns were expressed about including specific methods in the rule (field screening, use of on-site labs). It was also suggested that the rule not require scoping at all

sites ("shall vs. must") for remedial investigations. Key changes to Section 360 include a step-wise process, a flow chart and climate change (reducing green house gases) requirements. As for Section 350, the key proposed revisions are use of the EPA "triad" approach for site characterization. With respect to Section 360, it was suggested that Ecology clarify how someone would incorporate reducing green house gases into the remedy decision process. It was also suggested that Ecology clarify the use of "shall vs. must" for feasibility studies, as well as technology screening for the remedy selection process. Lastly, there was some disagreement about the utility of the proposed Section 360 revisions. Some felt that the proposed revisions did not add value and were not helpful, e.g. speeding-up cleanups. However, others felt that that there was value in clarifying Section 360.

Vapor intrusion (VI) pathway – background information presented. Key issues: site characterization and accounting for ambient / background. Several group members expressed concerns about the need for certainty and finality with this exposure pathway (i.e. when are you done). Next steps – Ecology is considering forming a small workgroup to assess VI rule requirements. This is a work-in-progress.

Acronyms

- MTCA – Model Toxics Control Act (Chapter 173-340 WAC)
- SMS – Sediment Management Standards (Chapter 173-304 WAC)
- H-H – human health.
- TEE – terrestrial ecological standards (MTCA Section 7490)
- PMEP – permanent to the maximum extent practicable (MTCA 360)
- RIFS – remedial investigation / feasibility study (MTCA 350-360)
- TCP – Toxics Cleanup Program (Department of Ecology).
- SEPA – State Environmental Policy Act
- APA – Administrative Procedures Act
- TPH – Total Petroleum Hydrocarbons
- GHG – green house gases
- PQL – practical quantitation limit (laboratory)
- PLP – potentially liable party
- ICs - institutional controls (ICs, MTCA Section 440)
- REL – remediation level (MTCA Section 355)
- G.W. – ground water.

Introduction

09:09 Hrs

Martha Hankins, Ecology – welcome everyone – convene meeting – please sign in. This is the second MTCA /SMS advisory group meeting. We're still getting to know each other. Introductions (advisory group members and audience). Agenda: a) reports from other groups and b) three topics - sediments, remedy selection and vapors.

- Last meeting – what we heard was less presentation and more interaction / discussion. Ecology heard that message – we will try and implement to the extent practicable.

- Meeting purpose – provide feedback to Ecology.

- Meeting summary (notes) – any questions on the November 23rd notes? If no, then Ecology will post on web site.

- Use of off-line e-mail: these are public meetings. Ecology requests de minimus off-line discussions. All e-mail to Ecology is subject to public disclosure.

- Reports from other groups - the MTCA Science Panel met on Nov 23rd to discuss two topics: early life exposure (carcinogens) and vapor intrusion.

- DMMP – dredge materials management program – Ecology, DNR and local governments are working on open water disposal of sediments with low-level dioxin. Agency directors meeting today. A revised / updated DMMP policy is tentatively scheduled for January (2010) roll-out.

Questions

- ***What is the role of the Puget Sound Partnership (PSP) this MTCA / SMS revision effort?*** Some involvement likely - to be determined (TBD).
- ***What revisions will be made on case by case flexibility? What will emerge?*** To be determined.

Sediments – Human-Health and Background

09:26 hrs

Chance Asher, Ecology Sediments Unit Supervisor – please refer to PowerPoint presentation for additional details.

Sediments workgroup meeting update report (Dec 2nd):

- Freshwater standards – PowerPoint presentation – workgroup prefers promulgation of both chemical and biological criteria. Explore: 1) other endpoints, e.g. wildlife bioaccumulation, 2) hit vs. no hit definitions, and 3) reference area failures. Freshwater standards should apply to entire rule and should not be limited to cleanup standards. Freshwater standards will be discussed with the larger group in March.

Question

- ***What do you mean by reference area failures?*** Consistency in reference sites is an issue.

H-H background subgroup - Ecology staff

- Context and problem statement?
- Differences between MTCA and SMS.
- Ecology will convey our thoughts on proposed rule revisions; however, we want to know your thinking. Fatal flaws? Important to identify.

SMS Rule Overview

- Three-part sediment management rule: a) source control, b) listing sediment cleanup sites and c) setting sed cleanup standards
- Two criteria: sediment quality standards and cleanup screening levels.
- Setting sediment cleanup standards is the main / key issue we will address in rule revisions.

H-H and Background – What Rule Revisions are Needed?

- Background – how do you consider background concentrations when setting cleanup levels? 10^{-6} risk levels are typically below background
- SMS vs. MTCA - a lot of confusion – stakeholders toggle back and forth between two rules.
- SMS cost and feasibility incorporated in setting the cleanup standard.
- SMS – only has an H-H narrative standard.
- MTCA – natural background used for cleanup standards.
- SMS / MTCA – cost incorporated in remedy selection.

Questions / Comments

- ***How have the differences between the SMS vs. MTCA rule played-out on cleanup sites? What are the observed problems?*** No good examples come to mind. Ecology will check into this. In general, there's not that much difference (higher / lower) between MTCA and SMS standards. From a MTCA perspective, most sites use Method A. For petroleum sites, some calculate a site-specific Method B soil concentration for the leaching pathway. Method C is typically only used for industrial sites. Method C is typically not used for g.w. cleanup levels, surface water standards or establishing remediation levels (RELs). An REL may be used to distinguish between different types of remedies.

- ***Bellingham Bay cleanup -*** cleanup levels (e.g. mercury) were based on human health protection - a non-cancer reference dose (RfD). Different remedial actions were implemented, e.g. source control and natural recovery (sediments). SQS defined area of concern – combination of measures taken to achieve standards.

- ***Bellingham Bay Whatcom Waterway cleanup –*** the SMS objective for any sediment cleanup is the SQS for environmental risk. This is the standard for Whatcom Waterway as well as a human health standard.

- ***Whatcom Waterway*** – cleanup consent decrees are based on ecological (SQS) and human health risk standards.

Background – Risk Levels Below Background

Chance Asher, Ecology - PowerPoint presentation (cont.)

09:49 hrs

Key Issues

- What do you do?
- Background is widespread and ubiquitous, e.g. arsenic / dioxins.
- Unlike upland soil, sediments are not static. They move around and circulate. There are a lot of contaminant sources, e.g. stormwater, etc. Sediments are the receiving medium for a variety of upland contaminants.
- What's been done to date on background? Ecology conducted extensive internal outreach from a diverse group of staff to define the issues and options. This included:
- Formed an internal workgroup (8 members).
- Defined the issues.
- Vetted the issues with a diverse, larger audience within Ecology including regional offices and other programs. Identified options: 5 to start with, which has now been narrowed to two.

A lot of internal dialogue – really taking issue seriously!

Proposed approach

- Figure out how a process to determine H-H protection and incorporate background into the process of setting cleanup standards.
- Some details will be in guidance and some rule revisions.
- Human health risk is an extremely complex issue so some details will not be dealt with right now due to time and staffing constraints.

What will be in rule?

- Decision making framework
- Level of protection
- Background definition

Implementation issues are huge!

Types of Background Options Ecology considered

- Background – non-anthropogenic.
- Natural background.
- Regional background.
- Area background.
- Habitat stratified.
- AKART and background.

Questions / Comments

- ***Background - implementation later – what does that mean?*** Larger scale, larger issues we will deal with now but many details will need to be sed aside for later deliberation. How this gets implemented affects workgroup opinion of what you say.

Background Types

- Area
- *Sediment regional background – new concept – between area and natural in scale.*
- Natural background.
- Non-anthropogenic.

If you cleanup – beware of recontamination!

Questions / Comments

- ***Natural and regional background – what is this?*** It's a scale issue – regional background is intermediate scale between natural background and area background. ***Have you looked at examples?*** Ecology will present example datasets to the sediment workgroup in January. It's difficult to use existing data to assess or determine background as the data was not collected for this specific purpose. Regional background will not apply to all areas and chemicals. It will probably apply for dioxins / PCBs in urban embayment's.

- ***Seattle Waterfront – is all of Elliott Bay regional background?*** No answers just yet. This is just a concept, we need to flesh this out and we need your help. ***What is regional background? For example, is it Elliott Bay away from point sources?*** Elliott bay would be considered regional and is separate and distinct from point sources. ***Is a regional a larger scale?*** Regional and natural background differences are based on scale.

- ***How would you determine background? What type of sampling plan would you need?*** To be determined (tbd).

- **You need to be careful about integrating sediment standards with other media (e.g. upland soil, etc.) within MTCA.** Good point.

Background Options

Started with over 15 options and narrowed down to 5 for discussion. These options were discussed (at length) and vetted within a diverse group of internal staff. This vetting process has resulted in two options:

- Cleanup standard would be the highest of highest of $1x10^{-6}$ risk, natural background and PQL.

- Cleanup standard would be set within a range between regional background as an upper level and highest of 10^{-6} risk, natural background and PQL as the lower level.

- Cleanup standard would be set within a range between 80% of regional background as an upper level and the highest of 10-6 risk, natural background and PQL.

- Cleanup standard would be set within a range between area background as an upper level and the highest of 10^{-6} risk, natural background and PQL.

Comments / Questions

- ***Is area background attributed to specific source?*** The area background option is the same definition as in MTCA, which is influenced by localized sources that are not from the PLP. That option was eliminated. Here's why: adopting this type of approach as a final cleanup for SMS would be different than MTCA. In the MTCA rule, area background may be used as the cleanup standard for interim actions. Also, the area background approach may result in unacceptably higher standards.

- ***How are regional vs. natural background standards different? Both include ubiquitous contaminants, but the scale is different.*** They do differ by scale. For example, natural background could be all of Puget Sound and regional background could be more embayment or area specific.

- ***Is area background defined in MTCA?*** Yes.

- ***Please change the term "natural" – it's a misleading term.*** Natural is not man-made (anthropogenic).

- ***Is the standard we set something to shoot for? What is "clean"? What will we make responsible parties cleanup to? What are the practicable implications? The 3 "non-options" – are they too restrictive? Do I have to cleanup beyond my sediment "patch" e.g. Elliott Bay?*** This seems to be a quagmire. Not sure if this is the right direction. What is the clean number vs. what we cleanup to? You need to be practical. People will not "play" if you make them over-cleanup, e.g. the Duwamish.

- ***PLPs will not cleanup sediments if they know it will be re-contaminated and they have to meet unrealistic levels***.

- ***Establish risk based goals that are practical.*** Remediation levels and area background: if risk based is below area background, then that should work. You need area background in the equation. *What you cleanup to is a continuum or part of the broader spectrum. It's just one part of the overall process.*

- ***The concentric circles slide (PowerPoint) – area background is linked to different localized sources.*** If you require sediment cleanup to area background, then you perpetuate the problem. You need to force PLPs to higher standards (regional background).

- ***Sediment standards should be risk-based.***

- ***How clean is clean – that is key issue.***

- ***How do we deal with recontamination?***

10:22 Hrs

Comments / Questions (cont)

- ***Are there other areas examples (e.g. San Francisco Bay) of sediment cleanups? How did those cleanups play out? What was done? What can we learn?***

- ***Site definition issue – what is a "site"?*** For example, the Seattle Waterfront, Elliott Bay – you can keep going and going. Where do you stop? Forcing everyone to cleanup to restrictive standards to make everything better over time has consequences. If source control from my facility is done and that's my site (e.g. the "patch" in front of my facility), then beware of possible quagmires and cleanups getting bogged-down. You cannot make everyone cleanup to impractical standards - it doesn't work. For example, MTCA regulations have set precedent or bar on what to cleanup to. The intent of MTCA is to not over-cleanup. Are you going to punish individual PLPs to cleanup to area vs. natural background? We should not "MTCA-ize" sediment cleanups.

- ***Sediment cleanups - natural vs. area – the real issue is maintenance.*** It does seem unrealistic for some areas (e.g. Seattle Elliott Bay) to cleanup to natural or regional background. The big issue is how to maintain over time, e.g. managing upland stormwater, sewage, etc. drainage to sediments. Those are constant problems. You need to address stormwater and sewage prior to implementing sediment cleanups. Ecology should consider removing "pockets" even if they get re-contaminated as levels will drop over time. Cleanup standard is what PLPs are responsible for; however, you must meet regional background.

- ***Tacoma Commencement Bay - Thea Foss Waterway – "twin 96-ers" outfalls*** – this cleanup greatly reduced risk by cleaning up high levels of multiple contaminants. The sediment was recontaminated, but with different contaminants (phthalates) and at much lower levels. In this case, recontamination is a problem; however, the cleanup significantly reduced overall environmental and human-health risk.

- ***EPA supports the concept of setting sediment remediation level (RELs) to area background.*** EPA disagrees it would be a fatal flaw to require cleanup to any level more stringent than area background. It would actually be a fatal flaw to limit cleanup to area background levels. Further work on options other than the "MTCA" approach should include understanding how such option(s) would work and also how they would meet the MTCA requirements.

- ***EPA believes it is important to work toward harmonizing the process for setting sediment cleanup standards.*** The current disconnect between MTCA and the SMS cleanup paradigms is very confusing. This disconnect contributes to significant delays and inconsistencies between decision and sites.

- ***It's easier and it makes more sense to cleanup to regional background.***

- ***If you implement area background, then that will create a "zoning" issue. Who will manage this and how will it be decided?***

- ***Is "unnatural background" a more accurate term for natural background?***

Audience Comments – Sediment Background

10:35 HRS

- ***Translating risk goals from MTCA to sediments is impracticable.*** This is an impossible goal. It's unrealistic to apply 10^{-6} risk level to fish consumption, e.g. Copper River salmon (Alaska). You cannot regulate down to miniscule levels.

- ***Recontamination is an artifact of cleanup levels.*** If we set the bar (cleanup standards) really low, then that creates false perception that a site is "dirty" when in reality the site is somewhat clean. Sites will evolve over time; this is a continuum that will likely take decades.

- ***Area background and remediation levels.*** MTCA Section 706 has restrictions on the use of Method A / B cleanup levels. Specifically, you are supposed to strive for Method B and then use Method C. Ecology should implement and use the same type of concept for sediment cleanups.

- ***Naïve question – why integrate the SMS and MTCA rules? Is this really necessary?***

- ***Implementing sediment cleanups – the concentric circles (PowerPoint slide).*** For Bellingham Bay, the focus was on cleanup of the "dark" areas, i.e. the high-priority targets or the material that was really worth going after. If you cleanup a bad spot and the whole area eventually gets lowered to SQS, then how do you establish remediation levels (RELs) for SQS? Area background should be used to define a site. This is a much more practicable approach, as opposed to other examples . Ecology should use area background to define a site. Not sure about cleanup standards.

---- -BREAK 10:45 HRS ----------

-- ---START – 10:55 HRS - ----------

Chance Asher, Supervisor, Ecology Sediments Unit (Cont.)

Sediment Background

- Option 1 – cleanup standard is highest of H-H, background and laboratory PQL. This may include Method C @ 10-5 risk for a single contaminant; however, you must be < or = to area background.

- Option 2 – conditional range – sediment regional background. You may use regional background if certain conditions are met :if it's not technically possible to cleanup , likely to re-contaminate, and identifiable sources are controlled to the extent possible. Ecology does not currently have clear definitions of regional background – this is a work-in-progress. To use regional background, you must have sources controlled to the extent practicable. What does that mean? We would like your input on this definition. Sediment regional background: this is a scale issue. The goal is to meet standards.

Questions / Comments

- ***Source control – what is a site?***

Sediment Regional Background Definition

"Hydrodynamically defined area based on mechanisms of contribution and distribution of persistent, ubiquitous and uncontrollable contaminants."

Framework – Two Proposed Options

- Option 1 – use the MTCA rule approach. The current MTCA framework is less flexible and less complex and it may be more protective; however, may also be less technically feasible and may result in fewer cleanups. Other issues: higher risk of recontamination, more interim actions.

- Option 2 – conditional range (regional background): similar to current SMS. More flexible; however, more complex , may be more technically feasible, and it may be less protective,

Sediment Workgroup Dec 2nd - H-H and background discussions – key issues:

- Natural vs. regional – technically infeasible – recontamination.
- Concern over the impact of higher standards for anything other than natural background.
- Background definition is a key issue that needs further work.
- Statistics – methods are important issue.
- Need to have predictable and timely cleanups.
- Defining significant sources – issue for Option 2.
- Interested in linking source control and cleanup efforts.

Questions / Comment

- ***What does source control mean?*** This is a huge issue. ***How do you select an area background level?*** If you establish regional background, then that should be used. Otherwise, it may create an unfair burden if you are forced to cleanup to natural / area background. Our preference is to cleanup to regional background as we anticipate recontamination to area levels. This is really a limited liability issue. Standards should not automatically be raised. The focus should instead be on reduced or limited liability. This may be done as part of the overall cleanup.

Chance Asher (Ecology) PowerPoint completed - 11:15 hrs

Comments / Questions

- ***If you go implement Option 2 (regional background), then that creates a divide between MTCA and SMS?*** Should you do this? Not sure.

- ***Has Ecology spent time analyzing sediment cleanup case history studies? How would this shake-out? From a statistical standpoint, are the differences (e.g. cleanup area) large or small?*** Ecology sediments staff are working on this. ***What is difference between regional vs.***

natural background? Existing data really isn't that all that useful. You need a study designed for that purpose. This is a work-in-progress. Ecology will present information on this issue at the January 7, 2010 sediment workgroup meeting.

- ***Should these natural, area and regional background concepts be applied to freshwater sediment cleanup standards as well? Or, is this marine water only? Regional background concept may not apply to all areas or to all chemicals. Sometimes there are no regional differences.*** Our rule revisions are applicable to the entire state. There may be regional differences we need to account for but the revisions are intended to apply to marine and freshwater sediment.

- ***What about situations where both fresh/ marine water come into play?*** How will you "marry" and resolve those issues? If this is spelled-out in the rule, then everyone knows what to expect. However, if you have flexibility, then that may create problems. Ecology needs to combine both upland cleanup standards with marine / freshwater sediment standards.

- Martha Hankins, Ecology - handout of key questions from last meeting (1-2 page summary) circulated to group members and audience. Please read and check.

Comments / Questions

- ***One fatal flaw – source control – this needs more work.***

- ***Achieving 10-6 risk threshold and natural background levels – we all accept that we cannot clean it all up.*** We need some data. We need to know and understand what background is, e.g. Elliott Bay, Harbor Island, etc. For Elliott Bay, defining background was a rigorous exercise. The difference between area and regional was significant (huge!!). The contaminant distribution was spotty, lots of gray with black spots (concentric circles slide). You cannot paint all thousands of sediment acres as needing cleanup. You cannot define the whole world as dirty – this is not practicable.

- ***Source control is fatally-flawed. Who is responsible for what?*** Ecology recognizes the very important and significant issues related to source control. Source control is not an issue that can be resolved easily or by one program, one rule, within one agency. It will need to be an agency wide, statewide effort to resolve..

- ***Two options should be considered: 1) cleanup as best you can today, and, 2) provide PLPs with some degree of finality. When are you done?*** PLPs want some certainty at the end of the day. We want to know when you are done. How do you resolve liability? These are key issues.

- ***MTCA vs. SMS – this is a convoluted issue.*** It's a good goal to try and make them work better. We should try and integrate MTCA / SMS. The transaction costs of interpreting MTCA / SMS rules are significant.

- ***It's unacceptable to say that if you can never get there, then you can do nothing.*** However, open to Option 2 for practicable reasons.

- ***Clarify Option 1 – For many bioaccumulative chemicals, the MTCA approach requires a cleanup standard that defaults to natural background. This is because 10^{-6} risk levels, and for a number of chemicals the 10^{-5} risk levels, is already below natural background.***

- ***The problem with regional background is that you are not fixing anything.*** What about 100-yrs from now? One other key problem: we don't know that much about sediment transport. Furthermore, we don't totally understand the benthic community at depths > 200 ft. Some embayments are easy to cleanup; however, others are more difficult. Site-specific features are crucial. Our overall goal should be reduce risk. Ecology should think about and consider long term goals and actions.

- ***PLPs are interested in cleanups below regional background; however, financial aspects are significant.*** You need clear end points and you need to address on the back-end. You need some assurance that you will not need to do this again. Ecology should avoid the "constant payment plan". We need to resolve liability, which ties to cleanup standards.

- ***In a perfect world, PLPs would cleanup to below area / natural background; however, this is not practicable.***

- ***Policy decisions beyond this are needed. This is a society problem. How do we look at larger areas?*** How do we reduce concentrations over time? Broader policy issues need to made prior to fixing sediment standards.

- ***If the objective is to get cleanups done, then you should cleanup to area background, as opposed to regional or natural background.*** You need to contribute to the overall goal of reducing sediment contamination. Up- front "haggling" (e.g. legal issues) about standards has resulted in cleanup delays. We need a cleanup process that provides finality (up-front) that gets us somewhere. Ecology should be flexible and allow for technologic innovation, as well as changes in science.

Issue RECAP – Sediment Background

11:45 hrs

- ***Provide examples of past sediments and examples of regional and natural background will address datasets to look at the issues of background***

- ***Clarify Option 2 regional background – what exactly does this mean? How is it defined?***

AUDIENCE COMMENTS / QUESTIONS

- ***Background cost / benefit analysis – Ecology should consider studies.*** Regional background definition will likely be very site specific, e.g. Seattle central waterfront. For example, the Seattle central waterfront is "divorced" from Elliott Bay. These are two separate and distinct areas.

- ***Option 1 (MTCA-type background) is dead on arrival.*** It's admirable to have a background range; however, the MTCA background template is not workable for sediment cleanups. Lower Duwamish sediments cleanups have struggled for some time with these issues. The Lower Duwamish is the sediment cleanup "poster child". Tens of millions of dollars have been spent and results are not clear. What is background? There's no good answers. This begs the question of who will define background? Most PLPs do not have the capability to define regional background. This is a very costly proposition. You must also define controllable sources. Because of upland sources (e.g. stormwater), you will not really know or understand regional background for some time.

STOP – LUNCH – 11:50 HRS ----------

Reconvene -12:23 hrs ----------

Martha Hankins, Ecology – please check roadmap (handout) – please check topics – will probably shoot for 2-3 topics per meeting. Announcements:

- Next meeting is Jan 11th, 2010
- Given the amount of materials, is that OK?
- February meeting – no sediment issues on the agenda. The thinking is that sediments workgroup will not have met yet.

Questions

- ***Are we going to stay this location?*** Yes. Probably.
- ***Will this group go through April?*** This location reserved through April.

Remedy Selection

12:30 Hrs

Pete Kmet, P.E., Ecology Policy / Technical Support Unit – note, see PowerPoint presentation for details.

Overview

This is draft rule language. Ecology has not landed on a solution. This language is just conceptual. Ecology is not looking for word changes or editing.

Key Points

- You are reviewing rule language; however, we (Ecology) are not locked-in. Previewing rule language is easiest way to convey issue.

- Problem: cleanups take too long. The typical MTCA cleanup is ~ 12 yrs (source: study of 200 MTCA cleanup sites; Dawne Gardiska, Ecology). One key bottleneck: average RIFS is ~ 3.7 yrs.

What can we do to remove bottlenecks in MTCA process?

- Editorial.
- Modest policy clarifications.
- Significant policy revisions.
- Combination.

This draft is "modest" combination of clarifications

- Keep current flexibility in remedy selection
- Don't specify presumptions
- Recognize institutional controls (ICs).
- Incorporate reducing greenhouse gases and climate change; however, this can be counter to goal of cleanups.

Section 350 – Proposed Revisions

- USCS soil classification.
- Horizontal and vertical flow (g.w.).
- Off-property characterization.
- Vapors – place holder.
- Integration of terrestrial ecological TEE.

Section 350(9) – Proposed Revisions

- Step by step process added (5 steps)
- Content of an FS – more details, e.g. identify cleanup levels (CULs) and point of compliance (POC).
- Identify remaining contamination amount type.
- SEPA checklist.
- 350(11) – managing wastes.
- 355 RELs – editorial.
- Section 357 – some changes.

Section 360 – Proposed Revisions

- Current 7 (permanent to the maximum extent practicable or "PMEP") – consolidate "threshold" and "other".
- Minor changes to remedy specific requirements.
- Consolidate non-permanent g.w. requirements.
- Eliminate quantitative analysis for ICs.
- Restoration timeframe: some reorganization. Presumptive timeframe not included.
- Climate change (e.g. sea level rise) and "green cleanups" (reducing GHG emissions) added to remedy selection process.

Questions / Comments

- ***Will quantitative analysis for institutional controls (ICs) be replaced with something else?*** IC is a policy choice, not a scientific analysis. For example, Ecology wants to avoid signage as an IC. Deed restrictions are minimum IC requirement.

- ***Is there still an expectation for "reasonable" restoration timeframe?*** Yes; however, no presumptive timeframe.

Section 360(4) – "PMEP" – Proposed Changes

- Disproportionate cost analysis (DCA) - editorial changes.
- Section 370 expectations must be considered.
- Cost analysis must include agency oversight.
- Net present value analysis – inflation rate and rate of return.
- Long term effectiveness – assume 1-ft. sea level rise.
- Preference for remedies that reduce GHG emissions.

Questions / Comments

- ***MTCA Section 350(5)(C) – EPA NPL sites – does this include proposed list sites?*** There's almost as many proposed sites as listed sites. Some sites stay proposed forever.

- ***What is definition of permanent and what is the expected sea level rise***? Some questioned the validity of 1-ft expected sea level rise.

- ***Pete Kmet, Ecology*** - proposed changes are designed to ensure that PLPs follow all steps at each phase or step so you don't add more time. Are there other changes that need to be made? We need to get out of the "hunt-and-peck" type approach for site characterizations (finding the needle in the haystack). Site characterization is the biggest barrier to cleanups. Ecology recommends use of the EPA "triad" approach, which relies on real time feedback, fielding screening, etc. Concept is to get as much site characterization work done up front, which saves time and dollars later.

Questions / Comments

- ***Suggestion: identify site conceptual model and exposure pathways. Do it early-on to avoid "hunt and peck" site characterization issues.***

- ***Expedited site assessment techniques -*** sometimes the public is told that "we don't know yet" and that further testing is needed, which is frustrating.

- ***Some concern about putting in the regulations the need for an on-site lab.*** This is a site-by-site decision. It may not appropriate for regulations.

- ***Triad approach: the concept is to put money up front, which saves money in the long run.*** What slows things down is nickel and dime approach.

- ***Use of shall vs. must – do you really have to do an FS for all sites?*** Why not just allow for quick and straightforward cleanups? A good example is the Anacortes site marina cleanup, which was a simple "dig and haul". The cleanup was done; however, to button it up, an FS had to be done. Does this really make sense? Why not have an expedited approach? Ecology should use "may" as opposed to "shall".

- ***Terrestrial ecological (TEE) – deleted "or to an exclusion under" – this was a big issue for MTCA PAC (2001).*** Does this come back in somewhere else? This is still part of the TEE process that is described in a different part of the rule.

- ***Remedy selection – proposed revisions - there's lots of changes; however, they don't really help. Why so many changes?***

- ***Integrate EPA sustainability concepts into the detailed analysis of alternative.*** *A sustainability evaluation should be done. Avoid back- of-the-envelope qualitative assessments. Evaluate overall life cycle costs analysis.*

- ***Area background issue - raises same questions that we discussed this AM.*** This is the same language moved elsewhere.

- ***TEE – will that include state and federal guidelines? What species?***

- ***Would like to provide feedback beyond today.***

- ***Triad approach for site characterization – EPA has not figured out how to meld this with speeding up cleanups – citing or referencing the triad is not likely to help.***

- ***Clarify the proposed climate change language.*** It's not clear how this works on the ground. What are practicable implications? Evaluate life cycle costs.

- ***Green house gases (GHG)*** - there's a reporting bill (state) that clarifies what gases are GHGs. Ecology should review.

- ***GHG – proposed climate change revisions - what exactly are you calculating?*** Is this a life-cycle analysis? More specificity is needed.

- ***TEE – incorporate impacts of contaminant on sensitive species, e.g. mink and dioxin, harbor seals, etc.***

- ***Step-wise analysis – there's no discussion of technology screening***. Putting forward alternatives that are not feasible or practicable is a concern. Restoration timeframes are often evaluated along with the DCA. They are not always two separate steps. Technology screening should be done in conjunction with disproportionate cost analysis. Please don't separate.

- ***Ecology should fine-tune remedy selection for Brownfield sites. Define what remedy selection is and what it means.*** There's a wide range of RIFS work. Some is focused on remedy concepts and not on detailed engineering-level analysis of a selected remedy. In other situations. PLPs get

into answering every possible question (engineering level analysis). This in turn results in lots of time and money spent trying to figure this out. The RIFS process should be adjusted to "fundamental" remedy selection. Incorporate future land use into remedy discussions, particularly Brownfields sites.

- ***Don't see anything in this language that speeds things up. These proposed revisions are not helpful.***

- ***EPA Triad approach – some on-site labs do not have the capability to get down to cleanup levels, e.g. benzene.*** This can be an issue.

- ***Reducing green house gases (GHG) – if you have equal rankings, then do you do more GHG friendly alternative?*** Please clarify. Specifically, it's not clear if this gets balanced against other criteria like protectiveness or just permanent to the maximum extent practicable.

----------Break 13:34 hrs ----------

----------Reconvene – 13:50 Hrs

Vapor Intrusion (VI)

13:50 Hrs

Ed Jones / Pete Kmet – Ecology – please see PowerPoint presentation for more details.

Martha Hankins , Ecology, VI Preamble

- Guidance distributed last meeting; 45 day comment period has ended. Bigger question now is what goes into the rule?
- Question now is preliminary framework.

VI – Key Challenges

- Accounting for ambient VOCs.
- Many site and building-specific factors affect vapor intrusion.
- MTCA standards based on long term exposure; however, VI exposure may be short duration.
- VI models are steady-state conditions, which is not representative of real world, e.g. changes in barometric pressure over weather fronts.
- EPA g.w. to indoor air screening levels – good data correlation (measured concentrations).
- EPA – no correlation between measured soil / indoor air VOC concentrations. Ecology guidance recommends soil gas measurements.

Questions

- Should Ecology adopt tiered approach?
- Should VI pathway target 70 substances + 6 TPH fractions in rule?

- Impact of commercial industrial facilities that use VOCs (e.g. dry cleaners) – how should this be evaluated in VI pathway assessments?
- What should be in rule or guidance?

Ecology VI Guidance

- Generally favorable feedback

VI process

- Are there VOCs and do they exceed screening levels (SLs)?
- Are there indoor air VOCs?

Typical Scenarios

- G.W. to indoor air, etc.

Preliminary assessment – are you within 100 ft. of a vapor source?

- Tier 1 – compare measured soil and g.w. VOC concentrations to screening levels.
- Tier 1 – g.w. – EPA national database, model calculations, site-specific paired indoor air and soil gas data.

Comments / Questions

- ***Tier 1 – this is a logical approach; however, caveat - is there something unique about a site that doesn't fit within Tier 1?***

EPA Attenuation Factors – G.W. to Indoor Air

- EPA attenuation factors – g.w. to indoor air X,Y plots (X is g.w. vapor phase, Y is indoor air). X,Y plots are based on data collected by EPA. The X-axis is predicted vapor-phase concentration (ug/m3, from Henry's Law Constant for various VOCs). The Y-axis is measured indoor air concentrations (ug/m3). The ratio between the two is the "attenuation factor".

- Ecology VI guidance - Henry's Law Constants (HLCs) have been adjusted to g.w. temperature (13° C / 55 F). HLCs are typically measured in the lab at 20° C; however, g.w. temperatures are typically lower, which impacts volatilization.

Questions / Comments

- ***Was there background text for the attenuation factors and HLCs?*** Yes, it's provided in the VI guidance.

Johnson and Ettinger (J&E) Model Overview

- J&E model – widely used for VI assessments. The model can be used to predict indoor air concentrations, based on site-specific measurements, e.g. soil type, foundation cracks, etc. There's a wide variety of input parameters to J&E model. Ecology has tried to constrain inputs. Ecology would prefer to not get into detailed discussions with the regulation about model inputs. For example, MTCA Section 747 has details on leaching models, etch. Which has resulted in a somewhat lengthy section? Ecology could provide J&E model input details in rule; however, it would make rule longer.

Comments / Questions

- ***Models are reliable – don't want to see J&E model not allowed.*** Garbage-in / garbage-out ("GIGO") is a separate issue (model input parameters).

- ***J&E model is a reasonable screening tool; however, not useful for predicting indoor air.*** At the end of the day it comes down to measured concentrations.

Soil Gas vs. Indoor Air (X,Y Plots)

- Ecology VI guidance – there's a distinction between shallow and deep soil gas attenuation factors. "Deep" soil gas is > 15 ft. depth with attenuation factor of 100. "Shallow" soil gas is < 15 ft. with attenuation = 10 ft.

VI Site Characterization

- VI sampling – summa canisters.
- Soil gas probes (nested over depth).
- Representative measurements.

Questions / Comments

- ***Is there a specific barometric pressure specified in the guidance for sampling?*** No. Ideally, you would collect samples during falling barometric pressure; however, that's difficult to achieve as barometric pressure is highly variable.

Tier II Assessments

- Key issue – what is from vapor source and not from ambient / background?
- Many want to skip Tier II and go to mitigation.
- Sub-slab sampling.
- Tier II decision matrix – carcinogens – may be hard to incorporate in rule, however, may be useful.
- End of RI VI assessments – you should know extent of problem and what you need to do.

Tier II Issues

- Is the proposed VI approach workable?

- Are proposed substances adequate?
- How do you account for commercial / industrial sources?

Questions / Comments

14:39 hrs

- ***How often are vapors and issue?*** VI pathway will likely impact lots of sites.

- ***Ecology's proposed VI screening levels are below Method A, which means more sites will be captured.*** How do you get out of VI pathway?

- ***Ecology VI guidance is heavy on assessment, not so much on FS and cleanup.***

- ***MTCA 740 air cleanup levels need to be revised, per EPA revisions.***

- ***Ground water VI screening levels are so low (e.g. TCE, benzene, etc.), which means a larger population of sites are screened-in.*** However, not all these sites may have VI issues. The Ecology guidance should incorporate multi-depth probes to filter out real problems. Ecology should not assume that low levels of g.w. VOCs automatically translates to problem.

- ***Indoor air data should trump other measurements, e.g. soil gas, subslab, etc***. The way the guidance is written now it appears that you are stuck forever in monitoring.

- ***Semi-volatiles (SVOCs) – are these an issue? How much of a problem?***

- ***Ecology should keep most of the VI information in guidance and minimize the amount within the rule.***

- ***Does the Ecology VI guidance provide details on remedy selection and site closure?*** Ecology hopes to provide some information in the rule.

- ***Industrial / commercial VOC sources and OSHA / WSHA regulations or MTCA*** – some policy decisions need to be made. The screening levels that we're talking about are really low / stringent (almost to the level of background "noise"). Cost / benefit really isn't there. OSHA / WSHA standards are much higher. If you are using VOCs, then you should not have to evaluate VI pathway.

- ***MTCA air sections (750) should mention VI and refer to guidance.***

Audience Comments

14:52 Hrs

- ***Good job on guidance. In particular, focus on assessment was a wise decision.***

- ***Keep VI in guidance and less in rule.*** You may have cross-contamination (off-site) issues to deal with. Site access can be a huge issue, especially when lawyers get involved. Indoor air / interior gas measurements - you don't want to go indoors – this can be very problematic. For example, shopping and strip malls – you have very little control over the situation. It's extremely difficult to "strip out" all the ambient noise (e.g. VOC sources). ***How do you deal with establishing building indoor air background?*** This is a huge issue.

- ***Indoor air sampling can be done if you have the right skill set.***

- ***VI costs can be significant.*** You don't just want to jump to mitigation – it may not save $ over time.

- ***VI pathway really isn't all that much different in terms of other exposure pathways. However, threat is real and tangible and not just theoretical.*** There's a real personal element to this. People don't like you poking around in their basements. Current vs. future risks – how do you insure that conditions remain static over the long term?

- ***Port of Vancouver- samples collected from ~ 700 homes with a ~ 70-80% acceptance rate (site access).***

- ***Port Angeles - areawide dioxin sampling created site access issues.*** If you do VI assessments, then how will that impact property values / real estate? The person that approaches home owners for access is extremely important. Public relations is extremely important.

- ***Do VI issues affect real estate / land values?*** CO study – no impact.

- ***Provide certainty in terms of mitigation and institutional controls (ICs)***. How long you maintain land use restrictions or treatments systems has a significant impacts on real estate transactions. A lot of real estate deals are squashed because of uncertainty over "how long".

- ***Ecology – how would the external group like to be involved in future VI pathway decisions? What level of interest / involvement do you have?***

Comments / Questions

- ***Would rather invest time / energy now.***
- ***Do you need a subgroup? Would everyone like a VI subgroup?***
- ***Lots of issues in VI guidance – so now issue is small group on what to put in rule?***
- ***Seems like a specific area, requires specific knowledge – perhaps it's better suited for subgroup.***
- ***How do we make this subgroup transparent?***
- ***Allow for interim feedback on groups.***
- ***For most, this is way over our head. Does EPA have expert? Some concerns about workgroup balance.***
- ***Should DOH be included in VI workgroup?***

VI Pathway - RECAP

Recommendation - Jan 11th - decide next step for VI pathway – subgroup?

Closing Announcements - Martha Hankins , Ecology

- Was everyone OK with how materials were distributed?
- Would like to avoid printing.
- Group member comment - please post presentations to web site ahead of time with follow-up - mail.
- Missing necklace – please check with Martha
- Overall feedback –food, lodging, etc. – if you have thoughts, please let Ecology know.

----------Meeting Adjourned - END – 15:15HRS – Thank-You!!----------

Appendix – Easel Notes

Sediment Participant Discussion - Human Health and Background Issues

The major concepts identified regarding the issue of how to incorporate and determine background sediment concentrations when setting cleanup levels included:

- **Statistics**: what metric is used to determine background is important and should be worked through with the Sediment Workgroup.
- **Sampling:** who would determine background (area, natural, or regional)? It will be an expensive requirement for PLP's.

The major concepts identified regarding what framework to adopt (**Option 1:** A MTCA approach that includes the highest of natural background, practical quantitation limit, or 10^{-6} risk levels or **Option 2)** A two level framework similar to the current SMS framework that includes Regional background as the upper level and the highest of natural background, practical quantitation limit, or 10^{-6} risk levels as the lower level) included:

- **Risk:** Determination of sediment cleanup levels should be based on risk, not background concentrations.
- **Feasibility:** Practicality (technical feasibility and cost) needs to be incorporated into decision making. Cleanup needs to be technically feasible to conduct.
- **How do we determine how clean is clean?** Determining if an extremely low cleanup level (natural background or regional background) is "cleaner" than a higher cleanup level (area background) is an important concept to include in decision making.
- **Recontamination:**
    - The potential of recontamination of sites that are required to be cleanup up to a very low level (natural background) is high. This does not provide incentive for PLP's to cooperate and will slow cleanup.
    - Maintenance of cleaned up sites is a big issues at cleaned up sites and can be unrealistic if recontamination potential is high.
    - It is important to continue to conduct cleanup to reduce risk and remove hot spots.
- **Source control:**
    - The definition of "significant sources" under the conditional range for Option 2 is important to determine.
    - Source control is an extremely important issue and complicates progress for cleanup.
    - Stormwater and wastewater is not under control and is the major source of contaminants to sediment.
    - The agency needs to develop an approach to controlling sources before requiring cleanup of sites that will become recontaminated.
- **Flexibility:** This is an important concept to incorporate into any framework or option that is decided upon. PLP's need flexibility either in how a cleanup level is determined or what alternative is determined.
- **Site Definition:**
    - How will this be determined if background concentrations are embayment wide?

    - Balancing the number of sites identified versus source control and recontamination is important.
- **Area Background:** Some support a MTCA approach that incorporates setting remediation levels at area background. If this is done then area background concentrations will decrease over time.
- **Liability Resolution:** PLP's want finality with cleanup and to be resolved of liability. There needs to be a framework that will allow a final cleanup. Continued interim actions are not sustainable.

Sediments - Audience Comments

- Translate MTCA risk goals to SMS; regulating to unachievable levels
- Recontamination is artifact of cleanup levels; site will go to a ubiquitous level over time (this is not recontamination)
- Section -706 – an intent to consider area background in Method C
- Reason to integrate – eliminate confusion only WHY integrate them?
- Implementability; figure out difference between long-term goals and establish remediation goals; use area background to get practical movement
- Area background to define a site. Question for cleanup standard.
- MTCA process: need remediation level flexibility.
- Limit liability as part of cleanup
- Option 2 – still divide between MTCA and SMS
- Two separate rules – uplands and sediments. How to combine/marry these two? Spell it out so everyone is on the same page
- Background issue will be the battle unless establish something different. Probably won't get to 10^{-6} for years. Can't have one standard for background; areas are different.
- Fatal flaws – source control
- Background is the key; definition
- Can't just cleanup – need data
- Area versus regional background: regional background in this context doesn't work (everything needs cleaning then)
- Finality issues – resolve liability – need certainty for cleanup
- If re contaminate a site, who is responsible? Less than area background is not a fatal flaw.
- Practical difference with disjointed regulations; make more predictable and understandable; increasing costs and not serving well
- What is clean?
    - If not, call it out and clean it up. Be clear on terms and goals, especially area background approach. Open to looking at option 2.

- Overall goal – what will it be like in 50 to 100 years? We don't know much about sediment transport and benthic system, especially at greater than 200 foot depths. Lower overall risk over time, will be ahead overall.
- Now, two incoherent rules, inconsistent. Make more coherent and clear. Look at other states as well as national trends.
- Address repeated cleanups over years.
- Need to resolve liability for final cleanup. Tie to cleanup standards.
- Have PLPs be responsible for their cleanup standard.
- PLP expectations? Society problem. Source control. Concentrations decrease over time. Address these or very different to address sediment standards.

- Future PLP liability issues, especially if technology and chemistry changes
- Contribute to overall lessening of contamination, may have to revisit due to changes in science

Audience Comments

- Case study work: impacts, cost benefit analysis examples
- Develop definition for regional background; this is very site specific
- Definition of regional background areas that are hydrogeologically different
- Option 1 is not implementable; move to range; regional background has merit; Lower Duwamish has struggled with these issues
- Who will define regional background? Responsibility of Ecology to define then what areas do you define? Costly
- Controllable sources – won't know regional background for a long time?

MTCA Section 350-360 Site Characterization / Remedy Selection

- -340, -350(5)(c) – National Priorities List Sites, Public Participation: should proposed sites be included?
- Some proposed sites stay there forever.
- Most sites are usually counted as listed sites. The difference between actual and listed sites is primarily intent – proposed and final sites to avoid parallel investment/decisions.
- Including proposed sites – is this putting the cart before the horse?
- Sea level rise and contamination: other opportunities for decreasing time at sites.
- Process slows down. Make a change in the approach. Make allowances for real time feedback. Decrease time delays.
- Using early conceptual models for contamination movement would also decrease time.
- Expedited assessment techniques: will there be less information on which to make decisions? Cost is the driver.
    - More comprehensive study/assessment upfront to work more quickly
    - Triad approach – use more field screens?
- Concerns putting in regulations the required use of an onsite laboratory. Is this always appropriate at every site? Should be a site by site decision.
- Specific regulations are not always appropriate for every site.
- Increased money spent upfront, by investing in analysis and discovery, may decrease overall cleanup costs.
- A point by point investigation slows down the cleanup process. Get all information upfront and get the right information upfront.
- Concerning the terms "shall" versus "may," "shall" really means "must." Add "as appropriate."
- Full scope doesn't always make sense.
- Need more flexibility for sites. Follow the process when it makes sense.
- Changes don't necessarily make the process better. Changes don't necessarily speed up the process. What's the point?
- Sustainability evaluation in the evaluation section and feasibility study.
- Overall lifecycle assessment decreases overall impact.
- Area background language (moved in section)

  - Ecological receptor species: does it include state and federal species? Yes, this should be clarified.
- Use the triad system. Expedite cleanup and investigations. The current system has not made cleanup work effectively. The triad approach may not be useful here. Look at doing greener remediation. Has been miss-use of the "doing nothing" option.
- Green house gas reporting bill: What do we calculate? What exactly are you calculating? Need clarity. What to compare?
- What about contaminant sensitive species? Some species are more sensitive to certain chemicals, both in terrestrial and marine environments. Ecological basis, greater benthic level. Which species should be looked at?
- Site specific risk assessment language
- Integrate terrestrial ecological evaluation (TEE) results into the remedy selection.
- Stepwise analysis: no discussion on technology selection.
  - Step 4 – 4 subsets
  - Evaluate the restoration timeframe (cost dependent)
  - Look at consequences
- Remedy selection – define as much as you can. What does it really mean and how specific should it be?
- When conducting an RI/FS, only look at information specific to remedy then the process will be able to move faster.
- Implement - useful to refer/reference client land use. Extra work done on site may alter; that is not necessarily useful.
- Doesn't see anything here that will speed up cleanups.
- Screening in field – adequate levels cannot necessarily be reached in the field.
- Green house gas and sustainability: where does cost come into this?

Vapor Intrusion Discussion

- Tiered approach – yes, logical approach. Caveat: unusual disturbance or unique site. Anything need to capture unique and unusual.
- Model – it is reasonable as screening tool.
- How often are vapors an issue? Does not have a sense for it. Will probably see vapors be more and more of an issue.
- Does Guidance or Rule make sense for these changes?
- Common VOCs: groundwater screening levels are very conservative. Guide should include multi-depth process. Sample where there are real issues.
- Guidance: indoor air samples (in homes) should trump other data points.
- Semi-volatiles are not a large problem; would need increased concentrations before they become an issue.
- Leave as much as possible in guidance.
- Risk-based levels in the workplace – is this a WISHA or OSHA issue? Workplace use of chemicals, occupational use.
- Make clear that this pathway is addressed at cleanup sites.
- Good Job! Stay focused.

- Keep in Guidance versus Rule.
- Provide other scenarios (and background), not just homes, such as malls and public spaces.
- Monitoring and compliance monitoring. Cost over time and perspective. Personal element. Current and future risks. Sampling strategy: homes versus businesses. Public relations.
- Certainty. Institutional mitigation controls.
- Reduce uncertainty for real estate transactions.

- **Vapor Intrusion Workgroup?**
- What should involvement look like?
- Participation up front
- Work with volunteers from groups for rule modification then present to larger group
- EPA participation and expertise? Balance the group.
- EPA and Health worked on the guidance.
- By January 11 we will have an idea of our next step.
- Notify group of web updates.