Comments received in response to MTCA/SMS Issue Summar‹Ŝă

Received through September 4, 2009

From:	Ryan, John
Date:	Wednesday, August 26, 2009 5:49:35 PM
Posted At:	Inbox
Conversation:	Comments on Remedy Decision MTCA Issue Paper
Subject:	Comments on Remedy Decision MTCA Issue Paper
Attachments:	REMEDY SELECTION COMMENTS (2).doc

Thank you for the opportunity to comment. Attached are comments from AECOM on the Remedy Decision issue paper. Please let me know if you need any additional information

Regards

John Ryan
Vice President
AECOM
360 468 4745

DRAFT FOR REVIEW

DATE: 8/20/2009

NAME John Ryan
TITLE Vice President,
ORGANIZATION AECOM
ADDRESS 90 Finisterre Lane, Lopez , WA 98261
PHONE 360 468 4745
E-MAIL john.ryan@aecom.com

ISSUE PAPER **REMEDY SELECTION**

COMMENTS & SUPPORTING INFORMATION

Thank you for providing the public with the opportunity to comment on these important topics. These comments are provided on behalf of AECOM an environmental and engineering firm with 6 offices and over 200 employees in Washington and 43,000 employees across the globe. AECOM serves on the executive committee of the Sustainable Remediation Forum (SuRF), participates in the "Green Remediation" group of the Interstate Technology and Research Council (ITRC), and is a founding member of the Global Carbon Capture and Storage Institute and a member of the World Business Council for Sustainable Development. We are committed to incorporating sustainability into all of our work.

We offer 2 comments:

1. ***We support the evaluation of Greenhouse Gas (GHG) emissions as part of the Feasibility Study Section (350) and the selection of cleanup actions section (360). This option should be fully explored as per the question raised in Table 3 of the issue paper.***

2. ***We encourage the DOE to include a "Sustainable Remediation" analysis as part of determining whether a cleanup action uses permanent solutions to the maximum extent practicable under WAC 173-340-360 (3). This could include evaluating GHG emissions as well as other core sustainability indicators such as energy consumption, water use, resource consumption and land revitalization. Sustainable remediation" expands upon MTCA's current remedy selection requirements and evaluates strategies for cleanups that use natural resources and energy efficiently, reduce negative impacts on the environment, minimize or eliminate pollution at its source, protect and benefit the community at large, and reduce waste to the greatest extent possible.***

SUPPORTING INFORMATION

There are multiple sources of available information on this topic that would help the DOE evaluate how these considerations can be factored into remedy selection. These include:

- The Environmental Protection Agency's publication: *Green Remediation: Incorporating Sustainable Environmental Practices into Remediation of Contaminated Sites.* This publication can be found at: http://cluin.org/greenremediation.
- A comprehensive peer reviewed paper on the topic: "**Sustainable Remediation Forum. (2009). Integrating sustainable principles, practices, and metrics into remediation projects. Remediation Journal, 19(3), pp 5 - 114. Editors P. Hadley and D. Ellis**.". This paper can be found at http://www.sustainableremediation.org . I am one of several authors of this paper which was an industry and government collaboration..
- Guidance published by the State of Illinois which can be found at http://www.epa.state.il.us/land/greener-cleanups/ . AECOM assisted the state of Illinois in developing this guidance
- The final policy prepared by the Department of Defense on this topic (attached).
- The Association of State and Territorial Solid Waste Management Officials (ASTSWAMO) task force on this topic. Information can be found at http://astswmo.org/resources_sustainability_greenercleanups.html .
- The Sustainable Remediation Tool (SRT) which provides an excel based platform for evaluating sustainability metrics such as GHG emissions. Information on this tool is available at http://www.afcee.af.mil/resources/technologytransfer/programsandinitiatives/sustainableremediation/index.asp . AECOM assisted the Air Force in the development of this tool.

In addition to the above, there is an ongoing effort by the State of Wisconsin to develop guidance for incorporating sustainable remediation into remedy decisions; the Wisconsin Initiative for Sustainable Cleanups (WISC). AECOM is assisting the state with this effort. The Interstate Technology and Regulatory Council (ITRC) is also developing guidance that could be used by states on this topic.

In short, there are many resources available to the DOE to incorporate sustainability into the MTCA Remedy Selection process. AECOM would be pleased to support this effort by participating in a technical subcommittee. There are many options to consider which could include revising specific sections of the MTCA regulation such as WAC 173-340-360 (3) or developing targeted guidance that explores how to incorporate these analyses into the existing regulatory framework.

From:	Dion Valdez
Date:	Thursday, August 27, 2009 12:20:56 PM
Posted At:	Inbox
Conversation:	Comments regarding MTCA Issue Summary Paper
Subject:	Comments regarding MTCA Issue Summary Paper

Ms. Martha Hankins
Washington State Department of Ecology
P.O. Box 47600
Lacey, WA 98504

Subject: Comments regarding MTCA Issue Summary Paper on Remedy Selection Cost and Time Associated with Professional Certification.

Dear Ms. Hankins,

The Pacific Northwest Chapter and the Eastern Washington Chapter of the Alliance of Hazardous Materials Professionals (AHMP) wish to request that time and cost associated with professional certification requirements be addressed in the Model Toxic Cleanup Act (MCTA) Issue Summary Paper on Remedy Selection. We believe our request, as briefly explained below, fits the category of "modest policy clarifications." We request that the following be added to Table 2 of the Issue Summary Paper on Remedy Selection:

Current Provision	Under Consideration	Comment
Professional Certification Cost and Time. Other states have successfully reduced time and costs by environmental professionals with the Certified Hazardous Materials Manager (CHMM) credential for remedy selection and document submittals.	Should Section 840 be amended to include competency criteria for additional professional credentials such as Certified Hazardous Materials Managers (CHMM) that demonstrate appropriate knowledge and expertise regarding remedy selection and document submittals?	Should speed up remedy selection and reduce unnecessary time and cost associated with reports, plans, and specifications submitted under WAC 173-340.

Environmental professionals with the CHMM credential are trained with knowledge of how to manage hazardous material impact to the environment. Required knowledge for the exam-based CHMM credential includes regulations, industry standards, chemistry and physics, and management principles relevant to hazardous materials associated with toxic site cleanup.

Time and cost associated with professional certification requirements have been reduced in other states because environmental professionals with the CHMM credential do not need to unnecessarily obtain additional document approval from other professionals whose credential is currently specified in the MTCA regulations. In fact other states such as Missouri already recognize the CHMM credential on a par with that of Professional Engineer and Registered Geologist, http://gachmm.pluggedintech.com/CHMMauthorities.htm..

We request that the Department of Ecology similarly allow environmental professionals with the CHMM credential to assume responsibility in remedy selection and document submittals

associated with the MTCA regulations. Thank you for your consideration.

Sincerely,

Dion Valdez, CHMM
Constellation Services
21516 265th Place SE
Maple Valley, WA 98038
425-413-2428

start: 0000-00-00 end: 0000-00-00

August 27, 2009

Ms. Martha Hankins
Washington State Department of Ecology
P.O. Box 47600
Lacey, WA 98504

Subject: Comments regarding MTCA Issue Summary Paper on Remedy Selection
Cost and Time Associated with Professional Certification.

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We request that the Department of Ecology similarly allow environmental professionals with the CHMM credential to assume responsibility in remedy selection and document submittals associated with the MTCA regulations. Thank you for your time and consideration.

Sincerely,

Nels B. Cone

Project Manager – Delta Environmental
Post Office Box 85418
Seattle WA 98145
206-985-7838

From:	Tochko, Steven
Date:	Thursday, August 27, 2009 3:33:32 PM
Posted At:	Inbox
Conversation:	Comments on MTCA-SMS Issue Summary Papers
Subject:	Comments on MTCA-SMS Issue Summary Papers
Attachments:	Boeing MTCA & SMS cover letter 27 Aug 09.pdf Boeing comments on Ecology MTCA & SMS Issue Papers Final 27 Aug 09.pdf

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Attached to this email please find the Boeing Company's comment to the MTCA-SMS Issue Summary Papers. We appreciate the opportunity to provide comments. We support Ecology's work to update these rules to include new data on chemicals and pathways, to reflect changes at the federal level including under CERCLA, and to clarify policies and better align MTCA and SMS requirements.

<<Boeing MTCA & SMS cover letter 27 Aug 09.pdf>> <<Boeing comments on Ecology MTCA & SMS Issue Papers Final 27 Aug 09.pdf>>

Steven Tochko
Manager,
Environmental Remediation

206 290 6577
steven.tochko@boeing.com

The Boeing Company
P.O. Box 3707
Seattle, WA 98124-2207

August 27, 2009
9L-22-N10-WDE-103

Ms. Martha Hankins
RuleUpdate@ecy.wa.gov
Policy & Technical Support Unit
Toxics Cleanup Program
Washington State Department of Ecology
Olympia, Washington 98504-7600

Subject: Comments on MTCA-SMS Issue Summary Papers

Dear Ms. Hankins:

The Boeing Company appreciates the opportunity to provide comments on the Department of Ecology's Issue Summary Papers prepared in advance of its proposed revisions to the Model Toxics Control Act Cleanup Regulation (MTCA) and the Sediment Management Standards (SMS).

We support Ecology's work to update these rules to include new data on chemicals and pathways, to reflect changes at the federal level including under CERCLA, and to clarify policies and better align MTCA and SMS requirements. In addition to the necessary updates and corrections for consistency, we suggest Ecology:

- Focus the process for screening relatively small, low risk, or uncomplicated sites to streamline the administration and risk control objectives for these sites;

- Balance the advantages of fixed rules with preset project manager decisions and flexibility with site-specific application of the rules, while maintaining consistency among comparable sites throughout the state;

- Ensure all data supporting cleanup levels and assumptions are properly vetted; and

- Conduct analyses of the economic impact on the regulated community (including federal, state, and local governments) of all substantive changes to the two rules, such as setting cleanup levels at natural background.

Our attached comments are organized and brief in keeping with their respective papers. We look forward to working closely with Ecology as rule revisions are prepared, proposed and finalized. Please contact me (206-290-6577; steven.tochko@boeing.com) or Will Ernst (425-891-7724; william.d.ernst@boeing.com) if we may be of any assistance.

Sincerely,

Steven Tochko
Manager
Enterprise Remediation

Attachment

cc: Jim Pendowski, Department of Ecology (by email)
Jeannie Summerhays, Department of Ecology (by email)

MTCA ISSUE SUMMARY PAPERS

ABC Framework for Cleanup Levels

Rule revisions should seek to clarify and simplify existing framework – MTCA generally provides a prescriptive process for developing risk-based cleanup levels based on use of standard equations with a combination of default and limited site-specific parameters. The current ABC framework has been used since 1991 and requires consideration of all exposure pathways relevant to any given site. Although other ways of organizing the development of cleanup levels might in hindsight be less confusing to some, reorganization of the cleanup level development process at this time is unlikely to result in significant improvements in understanding and developing cleanup levels. In turn, a change from the basic ABC framework would cause confusion for Ecology staff, the regulated community, and consultants for a considerable period. However, minor changes aimed at streamlining the process, such as incorporating the allowed modifications provided under modified methods B and C into the standard methods B and C, would increase clarity and reduce the length of these rule sections.

CLARC should be revised to address all pathways – The CLARC database currently provides ARARs and formula-derived values for air, groundwater, soil, and surface water, substantially reducing confusion regarding relevant values for these pathways and for the ARARs. However, CLARC does not include soil concentrations protective of groundwater, surface water, or terrestrial organisms, leading these pathways to be more subjective and less consistent. Ecology should reformat the CLARC website to clearly account for all potential pathways, and include formula values or guidance on cleanup levels for all potential pathways.

Use and Scope of Method A

Compliance with the rule should be clarified and simplified as much as possible – The original intent of Method A (i.e., to facilitate application of the rule for small or relatively simple sites) remains valid. The rule should be updated by including new data and guidance in order to clearly distinguish when Method A would apply and, in any case, to increase the opportunity for a site to be expedited through the cleanup process with the minimum amount of administration necessary.

Terrestrial Ecological Evaluations

No specific comments at this time.

Remedy Selection

In general, the current rule language should just be edited for added clarity – The development, selection, and implementation of cleanup actions that are protective of human health and the environment are the most important factors for a successful cleanup program. The process must appear and in practice be straightforward, consistent, reasonable, and applicable to the current and likely future uses of a property to promote and expedite the cleanup of sites. Editorial changes to the remedy selection sections of the rule could increase their clarity, and contribute to remedy development and evaluation steps that are more readily focused on the regulatory requirements. More significant text changes such as including additional guidance on how to conduct feasibility

studies and prescribing default evaluation factors are not necessary, could make consideration of site-specific factors more constrained and difficult, and would not support regulatory simplification and clarification.

The rule should reinforce the use of engineering controls where appropriate – Engineering controls such as containment are identified in the expectations for cleanup action alternatives section as an acceptable, protective cleanup action in some situations. The use and variety of such controls and the potential range of their application should be updated and made more explicit in the rule in order to ensure full consideration of engineering controls in remedy selection.

The Washington State legislature has facilitated accountable use of institutional controls – The Uniform Environmental Covenants Act (UECA), passed in 2007, included in its findings that *"Adoption of the uniform environmental covenants act in Washington will provide all participants in a cleanup with greater confidence that environmental covenants and other institutional controls will be effective over the life of the cleanup. This will facilitate cleanups of many sites and assist in the recycling of urban brownfield properties into new economic uses for the benefit of the citizens of Washington."* The provisions of the UECA protect the interests of Ecology and current and future landowners by requiring that covenants be recorded, so they would come to the attention of prospective purchasers and be reflected in the purchase price. A reflex toward requiring all contamination to be removed is contrary to legislative intent, could result in more bankruptcies, more burden on conscientious businesses and other taxpayers, and less redevelopment of brownfields. Biased requirements for expensive cleanups (e.g., large contaminant excavations) would potentially unfairly punish or jeopardize property owners, and could compel them to waste their resources when less onerous cleanups were clearly allowed by the legislation in order to adequately protect human health and the environment.

Current rule provisions for institutional controls should be strengthened as a valid component in remedy selection – Inadequate attention was applied to institutional controls in this and other issue papers. It is also problematic that in practice Ecology can often be reluctant to approve cleanup actions that include documented institutional controls that result in contamination remaining on a site for an indefinite period of time, despite the fact that this solution may be protective of human health and the environment. Although cleanup of contaminated property to the most stringent, unrestricted levels may relieve a property owner from potential future liability, aggressive cleanup actions such as removing all contaminated media are often not economically feasible, are impracticable or risky in their own right, or are not necessary to achieve protection of human health and the environment based upon the current and planned future use of the property. All means that allow a responsible party to successfully manage the risks posed by contamination at a site should be available, and the rule should accordingly provide comprehensive standards and/or guidance for all such actions. This is generally recognized in the current MTCA rule, which should be revised with additional standards and/or guidance that emphasizes the appropriate application of institutional controls and the UECA in order to ensure proper consideration by Ecology project managers.

Human Health Risk Assessment Methods and Policies

No specific comments at this time.

Fish Consumption Rates for High Exposure Population Groups

All data should be properly vetted – Tribal fish and shellfish consumption rates derived from the Suquamish survey (Suquamish Tribe 2000) are far higher than those for other Pacific Northwest tribes or EPA's national guidance on tribal consumption rates. The Suquamish rates are so high that they draw into question their veracity. Although there is a summary report available and the consumption rates therein were included by EPA Region 10 in their framework document, the Suquamish Tribe has never allowed anyone (not even EPA) other than the tribe's statistical consultant to see the raw data. Consequently, it is highly recommended that the results of the Suquamish survey (including the raw data) be subjected to an independent, third-party review by experts in the field of fish and shellfish consumption surveys before the consumption rates derived therein are ever applied in a regulatory setting.

The most restrictive fish and shellfish consumption scenarios generate unachievable standards – Attempting to regulate sediment cleanups on the basis of achieving acceptable risks associated with fish and shellfish consumption at the rates derived from the tribal surveys is impossible as long as the target carcinogenic risk for individual chemicals is 1×10^{-6}. The target tissue levels that would be necessary to yield acceptable risks at the higher tribal fish and shellfish consumption rate are unachievable; in the case of PCBs, tissue concentrations would have to be less than 0.06 ppb, which is more than two orders of magnitude below natural background tissue concentrations and well below common analytical detection limits. The same is true for dioxins, as demonstrated by the recent assessment of the risks associated with continued open-water disposal of sediments under the Dredged Material Management Program (DMMP). Even at the recreational fish and shellfish consumption rate, the target tissue level for carcinogenic risk of 1×10^{-6} would still be below natural background tissue concentrations of PCBs or dioxins. Regardless of the fish and shellfish consumption rate selected, the target tissue levels for common contaminants (e.g., PCBs, dioxins) that would be necessary to achieve acceptable risks should always be calculated. If those levels are lower than natural background tissue concentrations in the same species or lower than the concentrations of those same substances that can be found in other common foodstuffs (e.g., beef, chicken, pork, dairy products) purchased at a grocery store, then there is no viable point in trying to mandate cleanups to attempt to achieve those levels. Instead, it would be necessary to default to natural background, which is fraught with its own problems (see related comments on the *Background Concentrations in Setting Sediment Cleanup Standards* issue paper below).

Assumptions about fish and shellfish consumption at a site should be realistic – Fish and shellfish consumption rates are typically subdivided into different categories. In applying fish and shellfish consumption rates to an assessment of risks from a specific site or area, consideration should be given to the likelihood that the species in question really lives there and can be harvested at that location in the quantities assumed to be consumed. Clams, for example, are not harvested from the deeper waters of Puget Sound. Also, consumption of adult salmon should not be included in assessments of site-specific risks because the bulk of their contaminant body burdens are derived from much broader areas (e.g., Puget Sound and the Pacific Ocean) where they live most of their lives.

Correction - The issue paper on fish and shellfish consumption rates for high exposure population groups includes a Table 3 excerpted from a report on Oregon fish and shellfish consumption rates. There is an error in that table; the number of adults surveyed from the Suquamish Tribe was reported to be 284 but the actual number was 92. The report of that survey (Suquamish Tribe 2000) says that 284 tribal adults were initially identified as being eligible, but that only 92 adults were actually surveyed.

Please also see related comments under SMS issue paper *Ecological Risks from Bioaccumulative Chemicals in Sediment* below.

Vapor Intrusion

Sites with a low likelihood of significant risks should be screened out quickly – The vapor intrusion pathway is a cross-media pathway of great complexity, with an evolving understanding of the underlying science and the associated risks. A key problem is setting the threshold too low for sites requiring a vapor assessment. Most fundamentally, basic distinctions between different building characteristics and uses – and the current use versus likely possible future uses of the building and land – should be addressed and applied in any rule revision. Currently, sites with very low risk are driven to collect air samples, which are expensive, difficult to evaluate, and often unnecessary. Modeling approaches such as the current Johnson and Ettinger model are overly predictive of exposure and therefore risk, and are increasingly being marginalized for being too imprecise and extreme. Air sample results are often difficult to assess due to background air concentrations, which may include contributions from sources within the building unrelated to soil or groundwater contamination. Expensive sample data are too easily confounded by ambient conditions. Without better guidance on which sites are at greater risk for vapor intrusion concerns, this time consuming and, at times, low benefit evaluation will continue. Ecology should focus on developing a simple screening step early in the process (as available for some other pathways and receptors) through development of guidance materials, perhaps by clarification of currently-used terms such as "significantly higher," and/or clarification in the remedial investigation requirements.

Site building configurations and uses should be factors for early screenings – Some of Ecology's options under consideration in the Paper's Table 1 seem troublesome in this regard. For instance, requiring by default a vapor intrusion assessment in the RI process solely because a site's contamination includes volatiles seems burdensome and needless for many sites. Industrial and commercial facilities frequently lack basements, have floor slabs with built-in vapor barriers, and have very large internal building volumes with HVAC systems that operate on positive pressure. In combination, these factors greatly lower or eliminate the risk of vapor accumulation. Ecology needs to consider these common situations at commercial and industrial facilities in the screening process so that these facilities are not automatically required to perform a vapor intrusion assessment simply based on the presence of volatiles in soil or groundwater. The vapor intrusion pathway, in essence, is blocked or already controlled at many such sites. In contrast, some sites may genuinely have a vapor intrusion risk or problem, whether for an existing or possible future use and building configuration. As such, MTCA may work best with a case-by-case approach for vapor intrusion risks, using professional judgment and guidance based on site-specific factors and data. In addition, because of cross-media complexity, this pathway needs to be examined on a case-by-case basis, in accordance with guidance and basic parameters, rather than a prescriptive

rule or one where conservative judgment defaults to worst case assumptions. Nationally, excellent guidance documents are available to inform a technical screening approach for the vapor intrusion pathway.

Calculation methods and levels should be reconciled with occupational conditions – Background concentrations in buildings should be a key consideration at both the screening and site investigation phases, and reconciled against the cleanup levels calculated under MTCA Method B, which are often well below ambient concentrations. Guidance and clarification on how background concentrations and building factors should be applied would be helpful in determining if or how air samples should be collected. A cleanup level exceedance could likely be measured at many industrial and commercial sites. Without extensive air sampling to distinguish among multiple sources, such exceedances of a cleanup level will be difficult to interpret and act upon.

Cleanup Levels for Lead Contaminated Soils

No specific comments at this time.

SMS ISSUE SUMMARY PAPERS

Freshwater Sediment Standards

The rule should incorporate all applicable criteria and guidelines – Of the options presented in the *Freshwater Sediment Standards* issue paper, the existing marine model of establishing both numeric and biological standards (Option 3) is preferred and should be pursued by Ecology during rulemaking. Establishing only numeric standards (Option 1) would not provide clear guidance on how and when biological testing could be used to demonstrate that chemical concentration exceedances of criteria at some sites do not always result in unacceptable risk to ecological receptors (because of bioavailability of contaminants or other site-specific factors). The option of establishing only numeric standards (Option 1), but allowing biological testing based on "Best Professional Judgment and Best Available Science" (Option 4c) would introduce uncertainty into the site characterization process and result in inconsistent application of the SMS among sites. Establishing only biological standards (Option 2) would not provide a clear method for establishing which sediment sites are considered "contaminated" (see option 4[c][ii]). Allowing for "Best Professional Judgment" based on all site data to determine if biological tests are needed (Option 4[c][i]) without firm guidance would introduce variability and uncertainty into the site characterization process among sites. Further, guidance included in the revised rule should take into account the wide variety of hydrologic environments that could require sampling based on Ecology's definition of sediment. Sampling could be required in freshwater lakes and large rivers, but could also be required in intermittent streams, or in streams where only small quantities of sediment accumulate in discrete eddies. For small waterbodies, therefore, the revised SMS should recognize and incorporate procedures that account for the *de minimis* volume of sediment present.

Transitional environments between fresh- and saltwater should be addressed separately – A consideration of freshwater-saltwater transitional environments is critically absent from this and the other issue papers. Dynamic estuarine environments, being common throughout Washington State, represent a complex transitional environment that should not be lumped with freshwater or saltwater conditions and standards. The rule should define and clarify whether or how marine or freshwater standards (or a hybrid or some other method) would be applied in such dynamic, complex, and commonplace settings.

Supporting references and data should be specific to freshwater environments – Ecology should ensure that any reference documents and studies relied upon to establish numeric standards, such as those cited in the footnotes on page 1 of the Freshwater Sediment issue paper, contain sufficiently large and statistically valid data sets that are also representative of the freshwater environments to which the numeric standards will apply. The rule should allow site-specific application of the standards in transitional environments.

Biological testing should be representative of the site and conducted only when detected contaminant concentrations exceed numeric criteria – The requirement for biological testing should be clearly defined as necessary only in the instance of a detected chemical concentration exceeding the SQS or CSL. For instance, a non-detected chemical concentration at the practical quantitation limit (PQL), where the PQL exceeds the SQS or CSL, should alone not trigger the biological testing requirement. In addition, organisms and testing methods selected in the revised rule for use in biological testing protocols should be representative of the site being investigated; not doing so could lead to erroneous and misleading conclusions. The biological testing standard should also establish guidelines for evaluating test results against the testing methodology itself and site conditions unrelated to the potential contaminants under investigation. For example, a freshwater sediment site may be under investigation for potential heavy metals contamination; however, a biological test may "fail" because of a naturally occurring high sulfide content in the test sediments.

Sampling protocols and the statistical bases for biological tests should be established – The rule should establish a protocol for choosing the number of biological tests required to properly evaluate a site. For example, in the case of a potentially impacted area approximately 1 acre in size adjacent to an industrial property, characterization of chemical concentrations in sediment is typically carried out by sampling sediments at multiple stations. If SQS or CSL exceedances are identified at several stations within such an area, must biological testing be conducted for every station on the sampling grid where an exceedance occurs? It seems more appropriate to select a subset of stations (presumably with the highest exceedances and providing a representative spatial distribution) for biological testing, and thereby assess the area of interest as a whole (or as a "cluster").

Other Toxic, Radioactive, Biological, or Deleterious Substances

No specific comments at this time.

Background Concentrations in Setting Sediment Cleanup Standards

Setting natural background as a cleanup standard is a laudable goal but is infeasible – In cases where risk-based sediment concentrations (such as those derived to be protective of high rates of fish and shellfish consumption) are below natural background, the goal for sediment cleanups would default to natural background under the present rule. This is an untenable position, because to achieve and maintain that standard virtually all urban bays and other developed nearshore areas would require cleanup to those levels at an impossible cost for any number of parties, including private parties and federal, state, or local governments. Furthermore, ongoing non-point source contaminant inputs to such areas would mean that even if regulated areas were cleaned up to natural background concentrations, they could not be maintained at those concentrations. In addition, establishment of sediment cleanup levels is typically done on a chemical-by-chemical basis. However, establishment of sediment cleanup levels for chemicals associated with a specific site may make little sense if the risks associated with other chemicals that are ubiquitous in the environment and unrelated to that site are of a higher magnitude. Thus, while setting cleanup standards at natural background concentrations at a site may be a laudable goal, doing so for most constituents and settings would guarantee a failure to reach and maintain the standard. In those circumstances, it is also inappropriately punitive to require one or a few parties to clean up contamination caused by society as a whole. One solution would be to adopt the concept of area (or anthropogenic) background as allowed under CERCLA, recognizing that urban areas cannot practicably be held to as high a standard as pristine areas. Ecology should work toward developing a way to identify and prioritize areas for sediment cleanup and not simply default to saying that everything above natural background must be cleaned up. Specifying natural background as the ultimate goal is also untenable because it means that no sediment cleanups can ever be final (always interim), and monitoring and remediation would have to occur *ad infinitum*.

Establishing boundaries for effective background data sets – Rule revisions should clarify how site-specific background concentrations in fresh, brackish, and saltwater environments are to be established, especially for cases where upstream or off-site contaminant sources have contributed to the contamination at a site that was also a source of the same contaminants. Guidance should include criteria for establishing the effective boundary around a property so as to establish which data are to be applied in background level determinations.

Integrating the Sediment Management Standards and Model Toxics Control Act Rules

Inconsistencies weaken the process and should be identified and fixed – Ecology's goal is, in part, to propose rule revisions that clarify processes and terminology for sediment cleanup actions under the SMS and MTCA. Currently, decisions for sediment cleanup sites must comply with both SMS and MTCA (and/or CERCLA) rules, but differences between the rules cause confusion about how to comply with both. In addition to basic terminology differences, key disconnects between the two include how cost, feasibility, and permanence are considered when setting cleanup standards, as well as how risk thresholds are established. Differences also exist for remedy evaluation and selection. The inconsistencies between SMS and MTCA overlap significantly with other SMS and MTCA rule issue paper topics, particularly MTCA remedy selection, evaluation of ecological and human health risks under SMS, and treatment of background concentrations under SMS.

The fact that different rules could lead to different outcomes for the same site is a problem – State-led SMS cleanups at marine sediment sites have been effective because they have a set of numeric criteria that can be applied, with the ability to conduct site-specific toxicity tests to evaluate the predictability of the numeric criteria. In contrast, local Superfund sediment sites are mired in the evaluation of low level human health risks using high fish and shellfish consumption rates. The local sediment Superfund sites that have been completed (e.g., Todd Shipyards, Lockheed Shipyard Sediment Operable Unit, and Commencement Bay sites such as the Thea Foss Waterway) have all applied SMS criteria. Pragmatically, no sediments in Puget Sound will ever be "clean enough" to meet an excess cancer risk of 1×10^{-6}, using high fish and shellfish consumption rates and focusing on ubiquitous bioaccumulative chemicals such as dioxins, mercury, and PCBs. Human health-driven cleanup numbers (particularly for bioaccumulative chemicals) will be orders of magnitude lower than their corresponding cleanup levels based on benthic toxicity. As such, human health criteria for those chemicals would likely always override benthic toxicity, and the existing SMS chemical criteria could become less relevant.

The best of MTCA and the best of SMS should each be enhanced – The current MTCA and SMS rules each do many things well, but as noted above integrating the two rules may undermine this advantage. In revising each rule, Ecology should emphasize and build on those respective strengths to establish a more coordinated process that facilitates and unifies the state's approach to practicable cleanups at upland and aquatic sites.

Stormwater rules and source control should be integrated with MTCA-SMS – The rule revision process should consider linkages between the MTCA-SMS framework, source control, and Ecology's stormwater management rules. For example, this issue paper includes a goal of updating the definitions of "sediment," "surface sediment," and "contaminated sediment." Definitions should also be added for "suspended solids," "stormwater filtrate," and "accumulated solids" to address stormwater discharges and system structures, including catch basins, piping, manholes, detention ponds (lined or unlined and planted), and biofiltration swales, which serve to prevent the discharge of source materials. The current rules appear contradictory in this regard. For example, solids settled out in planted stormwater detention/sedimentation ponds technically meet the definition of "sediment" subject to regulation under WAC 173-204. This implies that a discovery of chemical concentrations exceeding the SQS or CSL in such solids would require a cleanup of these solids as an environmental medium. However, this interpretation ignores the function of stormwater detention facilities, which are meant to protect downstream aquatic environments precisely by trapping solids and contaminants.

Human Health Risks in Setting Sediment Cleanup Standards

Aquatic exposures are not analogous to terrestrial exposures – MTCA's target carcinogenic risk of 1×10^{-6} for individual chemicals or 1×10^{-5} for combined risks for multiple chemicals may work for terrestrial exposures, where human exposure may be more limited and there is generally not the potential for significant biomagnification through the food chain, as in aquatic environments. Translation of these target risks to the aquatic environment is unsound, resulting in unachievable standards. Consideration should be given to adopting a range of acceptable carcinogenic risks (e.g., from 1×10^{-4} to 1×10^{-6}, as under CERCLA), although even the low end of that range may be impossible to achieve under extreme exposure scenarios.

Exposure assumptions need specificity and practical application – Although this and some other issue papers refer to the fact that human health risk assessments must evaluate risks associated not just with fish and shellfish consumption, but also with dermal contact and incidental ingestion of sediments, there is neither specificity in the existing rule nor available guidance on what reasonable exposure scenarios should be evaluated. Under exposure scenarios required by the agencies for some recent CERCLA human health risk assessments in the Puget Sound region, carcinogenic risks associated with dermal contact and incidental ingestion have been deemed unacceptable, and even background concentrations of some naturally occurring chemicals (e.g., arsenic) may yield carcinogenic risks greater than 1×10^{-6}. Guidance should be provided on what reasonable exposure assumptions should be applied; otherwise, unrealistically high exposure assumptions will result in risks being so high that they cannot be reduced to acceptable levels.

Exposure risk should correspond to scale of site – Consideration needs to be given to the scale at which risks should be evaluated at sediment sites. For small sites, for example, it is unreasonable to assume that an individual's entire exposure of a given type would occur within that site, or that fish and shellfish sufficient to support very high consumption rates over a long period of time could all come from that site. Incorporation of fractional site use factors should be applied in such situations.

Ecological Risks from Bioaccumulative Chemicals in Sediment

Food-web modeling is a costly and imprecise tool – This issue paper refers to the use of food-web models to assess the relationships between chemical concentrations in sediment and tissue. Such models are sometimes used to estimate tissue concentrations (and subsequently risks) from existing sediment concentrations, and also to estimate future sediment concentrations that would be necessary to achieve specified risk-based target tissue levels. However, food-web modeling may be inappropriate for some bioaccumulative chemicals in sediments, and therefore guidance should be included in the revised rule on when such modeling may or may not be appropriate. For example, it should be noted that models such as the Gobas model can be used for certain bioaccumulative chemicals (e.g., PCBs, chlorinated pesticides), but cannot be used for other chemicals that may bioaccumulate to unacceptable levels (e.g., inorganic arsenic, mercury, carcinogenic PAHs). It should also be noted that food-web modeling is only valid if supported by large amounts of site-specific data. It is also very expensive and at best a blunt tool. Specifically, the results of modeling have a considerable degree of uncertainty, which is difficult to quantify and responsibly apply in decision-making. In the case of the Lower Duwamish Waterway, the end result of food-web modeling (at a cost in excess of $300,000) was a prediction that even if the PCB concentration in sediment is zero, there would still be enough uptake of PCBs from water alone to yield unacceptable risks at the tribal fish and shellfish consumption rates; therefore, the model had no value in setting an acceptable target sediment cleanup concentration. There must be an alternative provided other than food-web modeling for setting target sediment cleanup concentrations of bioaccumulative chemicals, either for small sites that cannot justify the huge cost of food-web modeling or for chemicals that are not amenable to such modeling.

Available science should not be generalized or overstated – The issue paper appears to assume that there is a relationship between the concentrations of bioaccumulative chemicals in sediment and tissue. While this may be true for some chemicals (e.g., PCBs), recent work on the Lower Duwamish Waterway has indicated that it may not be true for all chemicals and receptors. For

example, concentrations of inorganic arsenic and carcinogenic PAHs in clams did not appear to be correlated with sediment concentrations. In this case, direct uptake from water may be more important. Similarly, research at other sites has shown that bioaccumulation of mercury is subject to many factors, not just mercury concentrations in sediment. Given that the science and data underlying such relationships is not resolved, the rule development process should use care in representing and applying such factors.

Correction – The problem statement section of this issue paper contains the following two sentences: *"RSET concluded that, for most compounds tested, tissue levels to protect human health at general consumption rates (54 grams per day) were generally lower than levels needed to protect target species. However, this conclusion does not apply to subsistence fisher consumption rates which are significantly higher than 54 grams per day."* This is incorrect and the reverse is true; higher consumption rates would yield even lower target tissue levels, which would be even more protective of ecological receptors.

Glossary

No comments at this time.

From: Harold Tilden
Date: Thursday, August 27, 2009 10:18:04 PM
Posted At: Inbox
Conversation: Comments re: MTCA Issue Paper
Subject: Comments re: MTCA Issue Paper

Date: August 27, 2009

Commenter: Harold Tilden, Government Affairs Coordinator
Academy of Certified Hazardous Materials Managers
Eastern Washington Chapter

P.O. Box 999, Mail Stop K3-75
Richland, WA 99352-0999
(509) 375-2966
harold.tilden@pnl.gov

Summary Paper Commented Upon: Remedy Selection Cost and Time Associated with Professional Certification

Comments and Supporting Information:

The Eastern Washington Chapter of the Academy of Hazardous Materials Managers requests that time and cost associated with professional certification requirements be addressed in the Model Toxic Cleanup Act (MTCA) Issue Summary Paper on Remedy Selection. We believe our request, as briefly explained below, fits the category of "modest policy clarifications." We request that the following be added to Table 2 of the Issue Summary Paper on Remedy Selection:

Current Provision	Under Consideration	Comment
Professional Certification Cost and Time. Other states have successfully reduced time and costs by environmental professionals with the Certified Hazardous Materials Manager (CHMM) credential for remedy selection and document submittals.	Should Section 840 be amended to include competency criteria for additional professional credentials such as Certified Hazardous Materials Managers (CHMM) that demonstrate appropriate knowledge and expertise regarding remedy selection and document submittals?	Should speed up remedy selection and reduce unnecessary time and cost associated with reports, plans, and specifications submitted under WAC 173-340.

Environmental professionals with the CHMM credential are trained with knowledge of how to manage hazardous material impact to the environment. Required knowledge for the exam-based CHMM credential includes regulations, industry standards, chemistry and physics, and management principles relevant to hazardous materials associated with toxic site cleanup.

Time and cost associated with professional certification requirements have been reduced in other states because environmental professionals with the CHMM credential do not need to unnecessarily obtain additional document approval from other professionals whose credential is currently specified in the MTCA regulations. In fact other states such as Missouri already recognize the CHMM credential on a par with that of Professional Engineer and Registered

Geologist, http://gachmm.pluggedintech.com/CHMMauthorities.htm..

We request that the Department of Ecology similarly allow environmental professionals with the CHMM credential to assume responsibility in remedy selection and document submittals associated with the MTCA regulations. Thank you for your consideration.

From:	Herb Brod
Date:	Thursday, August 27, 2009 7:14:47 AM
Posted At:	TCP Rule Updates
Conversation:	MTCA Cleanup Regulation Update Comments
Subject:	MTCA Cleanup Regulation Update Comments
Attachments:	MTCA Cleanup Regulation Update Comments.pdf

Ms. Martha Hankins -

Please find the attached letter providing comments re: the 2009 the Model Toxics Control Act Cleanup (MTCA) Regulation Update currently being proposed. If you have any questions concerning these comments, you may contact me at the phone numbers or e-mail address provided below.

Thank you for your time in considering these comments.

Herb Brod, MS, CIH, CHMM
EHS-International, Inc.

13228 NE 20th St., Ste 100
Bellevue, WA 98005
Phone: (425) 455-2959
Fax: (425) 646-7247
Cell: (425) 766-1546
e-mail: herbb@ehsintl.com

EHS–International, Inc.

13228 NE 20th Street, Suite 100
Bellevue, Washington 98005-2049
Phone 425-455-2959
Toll Free 800-666-2959
Fax 425-646-7247

August 28, 2009

Ms. Martha Hankins
Washington State Department of Ecology
P.O. Box 47600
Lacey, WA 98504

Subject: Comments regarding MTCA Issue Summary Paper on Remedy Selection Cost and Time Associated with Professional Certification.

Dear Ms. Hankins,

The Pacific Northwest Chapter of the Alliance of Hazardous Materials Professionals (AHMP) wish to request that time and cost associated with professional certification requirements be addressed in the Model Toxic Cleanup Act (MCTA) Issue Summary Paper on Remedy Selection. We believe our request, as briefly explained below, fits the category of "modest policy clarifications." We request that the following be added to Table 2 of the Issue Summary Paper on Remedy Selection:

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Sincerely,
PNW Chapter AHMP Member

Herbert Brod, MS, CIH, CHMM
Hazardous Materials Services Manager
EHS-International, Inc.
herbb@ehsintl.com

From:	ERSS Consulting
Date:	Friday, August 28, 2009 12:55:09 PM
Posted At:	Inbox
Conversation:	Comments on MTCA Terrestrial Ecological Evaluations Issue Paper
Subject:	Comments on MTCA Terrestrial Ecological Evaluations Issue Paper
Attachments:	Comments on TEE issue paper.doc

Please let me know if you have any difficulty viewing the attachment or have any questions.
Thanks

Nigel Blakley PhD, PE
EcoRisk Support Services
erss@sitetee.com

ECORISK SUPPORT SERVICES

August 27, 2009

Martha Hanks
Toxics Cleanup Program
Washington State Department of Ecology

Re: Comments on Terrestrial Ecological Evaluations Issue Paper

ERSS is currently conducting a review of the implementation of the existing provisions in MTCA regarding Terrestrial Ecological Evaluations (TEEs). The following suggestions are based on preliminary impressions from our work to date and are being submitted now to meet Ecology's deadline for comments. They do not represent final conclusions and recommendations from our complete review.

Reducing uncertainty and confusion.

1) Consider adding an exclusion under WAC 173-340-7491 for routine petroleum cleanups involving leaking underground tanks. Under the current MTCA, a TEE must be conducted at every site with soil contamination. A TEE must consist of one of the following: (i) Documentation of an exclusion from further evaluation; (ii) performing a Simplified Evaluation; or (iii) a Site-specific Evaluation. This concept appears to be widely misunderstood. For example, a recent Agreed Order issued by Ecology states that the Remedial Investigation must include "a terrestrial ecological evaluation or a demonstration that the Site meets the conditions for an exclusion from a terrestrial ecological evaluation as specified in WAC 173-340-7491."

Perhaps as a result of this confusion it appears that many site cleanups may not have complied with the requirement to conduct a TEE. In the majority of cases, these are sites which would qualify for an exclusion. They also primarily involve leaking underground petroleum storage tanks.

4946 Beverly Dr NE, Olympia, WA 98516-2213 (360) 951-9586 erss@sitetee.com

To promote compliance with the TEE requirements and simplify the process we suggest that Ecology may wish to consider providing an exclusion option that could be used for many routine petroleum cleanups. Specifically, for sites where petroleum related cleanup levels are more stringent than TEE screening levels there is a basis for providing an exclusion from further TEE evaluation.

2) Consider developing "boilerplate" language regarding the need to conduct a TEE for use in all Agreed Orders and Consent Decrees. The boilerplate should briefly explain that the TEE can consist of documenting a "7491 exclusion", conducting a Simplified TEE, or conducting a Site-specific TEE. It should also specify where the TEE will be reported (preferably in the RI report or the Cleanup Action Plan).

The current lack of standard language in Agreed Orders probably contributes to the confusion as to what is required and the failure to conduct a TEE at some sites. Our review to date suggests that many Agreed Orders do not mention the need to conduct a TEE. Others contain language regarding ecological analyses that appears to predate the 2001 MTCA rule revision. We have not yet found an Agreed Order that contains a correct explanation of the TEE requirement.

3) Consider providing workshops for consultants. Our review suggests that despite the availability of written guidance, there is still some confusion among consultants as to what is required. In one instance, for example, we found that a form provided by Ecology for use in deciding whether to conduct a Simplified or Site-specific TEE was completed but erroneously interpreted in an RI report to indicate that "[a] terrestrial ecological evaluation is not required for the Site because it does not meet any of the criteria in WAC 173-340-7491(2)." This error apparently went unnoticed by Ecology. In less extreme instances, we found evidence of confusion as to the appropriate level of detail required. In some TEEs the conclusions were well-documented, while in other cases the TEE was condensed into a single undocumented sentence (e.g., "No paths to environmental receptors are present at the site.").

4) Develop a consistent policy on where results of the TEE should be reported. We suggest that every Cleanup Action Plan should either include the TEE report or indicate where to find it (e.g., in the RI/FS report). The availability of this information at standard location should make it easier for both Ecology staff and interested parties to insure that the TEE was conducted and is readily accessible.

4946 Beverly Dr NE, Olympia, WA 98516-2213 (360) 951-9586 erss@sitetee.com

New scientific information.

We support the use of new scientific information to recalculate screening level values in Tables 749-2 and 749-3, to replace missing values in these tables, and also to develop values for chemicals not currently listed in Table 749-3. However, in making changes, we strongly urge Ecology to clearly distinguish between changes that reflect new scientific information and those that reflect changes in policy. Table 2 of the Terrestrial Ecological Evaluations Issue Paper indicates that Ecology is well aware of this distinction.

Method A tables, TEE screening values and cleanup levels

We support the inclusion of screening values in the Method A tables to reduce confusion and simplify the process. However, we believe that experience to date with the TEE process supports the view that it is time for Ecology to go further and develop ecologically-based soil cleanup levels for use at sites that do not qualify for a 7491exclusion.

Clarifying the roadmap to cleanup levels and remedy selection.

Confusion on this issue seems to at least partly reflect the lack of familiarity with effects-based approaches (e.g., bioassays) for defining contaminated areas requiring cleanup. However this is the primary approach used for cleanup decisions under the Washington Sediment Managements Standards. We suggest that discussions with sediment management specialists may be helpful in understanding how the approach is used and can be integrated into soil cleanup decisions.

Finally, we note that there appears to be an ongoing misconception concerning the level of expertise required to supervise or review a Site-specific TEE. The Site-specific TEE approach is closely modeled on the USEPA's ecological risk assessment procedures, and therefore requires a level of experience and expertise comparable to that of ecological risk assessors involved in Superfund cleanups. Typically, the regulator involved with a Site-specific TEE may need to draw on training in disciplines such as toxicology, population ecology, botany, and wildlife biology to make informed decisions and guide the process to remedy selection.

Thank you for the opportunity to comment.

Nigel Blakley PhD, PE
EcoRisk Support Services

From:	Erin M. McKeown
Date:	Friday, August 28, 2009 4:44:39 PM
Posted At:	Inbox
Conversation:	Please comment to Ecology regarding MTCA regulations
Subject:	FW: Please comment to Ecology regarding MTCA regulations
Attachments:	CHMMcomments_MTCA_remedies.doc
Importance:	High

Martha, I'm forwarding a request for CHMM credentials to be allowed in the MTCA rule updates. I would similarly like to see the CIH (Certified Industrial Hygienist) credential approved as well in MTCA. I manage the MTCA program for the UW and as you can see I'm a CIH.

Erin McKeown, CIH
University of Washington
Environmental Health & Safety
Environmental Programs Office
Box 354110, Seattle WA 98195-4110
voice 206-616-0585, fax 206-685-2915

From: Lafata, Mark A (Redmond) [mailto:mark.lafata@rocket.com]
Sent: Wednesday, August 26, 2009 6:06 PM
Subject: Please comment to Ecology regarding MTCA regulations
Importance: High

SENT ON BEHALF OF ERIK BERG.

The Government Affairs Committee for the chapter requests that as many of you as possible to send in comments to the Department of Ecology regarding the MTCA cleanup regulation update. ***(Please note the comment deadline is Monday August 31!)*** We have prepared the attached one-page comment letter presenting our request to Ecology. We believe we have sound reasons for the CHMM to be included in the MTCA regulation, and more comments will increase our chances of being recognized. Please do the following:

--Review the attached suggested comment letter.
--Enter your name and other information at the bottom of the page and save the comment letter to your hard drive.
--Alternatively, you can copy the letter into your email text area and then enter your name and other information at the bottom of the page.
--Send your email (with attached letter if applicable) to Martha Hankins at RuleUpdate@ecy.wa.gov .

More information about the MTCA comment process is available at
http://www.ecy.wa.gov/programs/tcp/regs/2009MTCA/issues/issuesTOC.html .

Thank you for taking time to help further the growth of our CHMM credential! And thank you to Nels Cone, Rampur Viswanath (from tri-cities), and Mark Menard for helping put this together

Sincerely,

Erik Berg, CHMM
Chair, Government Affairs Committee PNWC-AHMM
Berg Environmental Services
425-235-3480

August 29, 2009

Ms. Martha Hankins
Washington State Department of Ecology
P.O. Box 47600
Lacey, WA 98504

Subject: Comments regarding MTCA Issue Summary Paper on Remedy Selection
Cost and Time Associated with Professional Certification.

Dear Ms. Hankins,

The Pacific Northwest Chapter and the Eastern Washington Chapter of the Alliance of Hazardous Materials Professionals (AHMP) wish to request that time and cost associated with professional certification requirements be addressed in the Model Toxic Cleanup Act (MCTA) Issue Summary Paper on Remedy Selection. We believe our request, as briefly explained below, fits the category of "modest policy clarifications." We request that the following be added to Table 2 of the Issue Summary Paper on Remedy Selection:

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Environmental professionals with the CHMM credential are trained with knowledge of how to manage hazardous material impact to the environment. Required knowledge for the exam-based CHMM credential includes regulations, industry standards, chemistry and physics, and management principles relevant to hazardous materials associated with toxic site cleanup.

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We request that the Department of Ecology similarly allow environmental professionals with the CHMM credential to assume responsibility in remedy selection and document submittals associated with the MTCA regulations. Thank you for your consideration.

Sincerely,
PNW Chapter Member Name, Affiliation

From:	Viswanath, Rampur S
Date:	Friday, August 28, 2009 8:52:28 AM
Posted At:	Inbox
Conversation:	Comments regarding MTCA Issue Summary Paper on Remedy Selection Cost and Time Associated with Professional Certification
Subject:	Comments regarding MTCA Issue Summary Paper on Remedy Selection Cost and Time Associated with Professional Certification
Attachments:	CHMMcomments_MTCA_remedies_Final.doc

August 28, 2009

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Washington State Department of Ecology
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We request that the Department of Ecology similarly allow environmental professionals with the CHMM credential to assume responsibility in remedy selection and document submittals associated with the MTCA regulations. Thank you for your time and consideration.

Sincerely,

Rampur,

Rampur S. Viswanath, Ph.D., CHMM, REM.
Senior Scientist
Washington River Protection Solutions
PO Box 850, Mail Stop T6-02
Richland, WA 99352
Phone: 509-376-9223
Fax: 509-372-1878
email:rampur_s_viswanath@rl.gov

From:	Erik Berg
Date:	Saturday, August 29, 2009 6:52:04 PM
Posted At:	Inbox
Conversation:	Comments regarding MTCA Issue Summary Paper on Remedy Selection
Subject:	Comments regarding MTCA Issue Summary Paper on Remedy Selection

August 29, 2009

Ms. Martha Hankins
Washington State Department of Ecology
P.O. Box 47600
Lacey, WA 98504

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We request that the Department of Ecology similarly allow environmental professionals with the CHMM credential to assume responsibility in remedy selection and document submittals associated with the MTCA regulations. Thank you for your consideration.

Sincerely,

Erik Berg, CHMM
Chair, Government Affairs Committee, Pacific Northwest Chapter, Alliance of Hazardous Materials Professionals
Berg Environmental Services
425-235-3480

August 29, 2009

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Washington State Department of Ecology
P.O. Box 47600
Lacey, WA 98504

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We request that the Department of Ecology similarly allow environmental professionals with the CHMM credential to assume responsibility in remedy selection and document submittals associated with the MTCA regulations. Thank you for your consideration.

Sincerely,
Lee Dorigan, CHMM 04820

From:	John Labadie
Date:	Sunday, August 30, 2009 6:19:02 PM
Posted At:	Inbox
Conversation:	Comments to the Department of Ecology regarding the MTCA cleanup regulation update.
Subject:	Comments to the Department of Ecology regarding the MTCA cleanup regulation update.
Attachments:	PNWC-AHMP ltr.doc

Ms Martha Hankins
Department of Ecology.

Please see the attached comment regarding the MTCA cleanup regulation.

Thank you,
John R. Labadie, CHMM

1924 Franklin Avenue East Seattle, WA 98102 (206) 320-0455

August 30, 2009

Ms. Martha Hankins
Washington State Department of Ecology
P.O. Box 47600
Lacey, WA 98504

Subject: Comments regarding MTCA Issue Summary Paper on Remedy Selection Cost and Time Associated with Professional Certification.

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Sincerely,

John R. Labadie, PhD, CHMM
Strategic Advisor
Seattle Public Utilities

From:	Timothy S Bingman
Date:	Monday, August 31, 2009 7:06:17 AM
Posted At:	Inbox
Conversation:	DuPont Remediation Group Comments on MTCA Issue Papers
Subject:	DuPont Remediation Group Comments on MTCA Issue Papers
Attachments:	DuPont Preliminary Rulemaking Comments 083109.doc ATT01367.txt ATT01366.gif

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August 31, 2009

Ms. Martha Hankins
Supervisor for Policy and Technical Support Unit
Toxics Cleanup Program
Washington State Department of Ecology

Dear Ms. Hankins:

On behalf of DuPont's Corporate Remediation Group (DuPont) I am pleased to provide our preliminary comments on several of the Department of Ecology (Ecology) Model Toxics Control Act (MTCA) issue papers. It is our understanding that Ecology has developed these issue papers to solicit early input in advance of forthcoming revisions to MTCA. We commend Ecology in its efforts to keep MTCA up to date with advances in remediation science and technology. As a science company with remediation obligations in multiple states and countries, DuPont is continuously working to develop and promote the use of the best available science in our remediation programs. To that end, we are well positioned to provide input to Ecology as it prepares for the upcoming rulemaking efforts.

Of particular interest to DuPont is Ecology's effort to advance the consideration of sustainability in remedy selection. We feel strongly that a consideration of the environmental impacts of remedy implementation (e.g. greenhouse gas emissions, etc.) should be a part of remedy selection. DuPont is a founding member of the Sustainable Remediation Forum (SURF), an international consortium of regulatory, industrial and academic stakeholders working to advance the concept of sustainability in remediation. We believe that the concepts and tools developed by SURF would be very useful to Ecology in the upcoming rulemaking effort, and DuPont is pleased to be able to serve as a conduit to this information.

As with any regulatory proposal, we hope that revisions undertaken by Ecology to the current MTCA statute will be consistent with the cost-benefit provisions of the Administrative Procedures Act, and that Ecology will enact only those provisions where the probable benefits of the rule are greater than the probable costs.

Consistent with your request, our response is organized as follows:

Date: August 31, 2009

Contact Name: Timothy S. Bingman

Representing: DuPont Corporate Remediation Group

Contact Information: Timothy S. Bingman, DABT
DuPont CRG
1108 Ohio River Blvd., Suite #801

Sewickley, PA 15143
Phone: (412) 749-5246
e-mail: timothy.s.bingman-2@usa.dupont.com

Issue Papers Being Commented Upon:

1. **Remedy Selection**
2. **ABC Framework for Cleanup Levels**
3. **Human Health Risk Assessment Methods and Policies**
4. **Cleanup Levels for Lead-Contaminated Soils**

DuPont's comments on the aforementioned issue papers are contained in the attached MSWord file entitled "DuPont Preliminary Rulemaking Comments 083109.doc." We hope that Ecology will receive these comments in the spirit in which they were prepared - as a mechanism to start a dialogue that will advance the use of sound science in remediation in a way that ensures the protection of people and the environment.

I will follow-up with you to ensure your receipt of these comments, and to discuss how we might become better engaged in your rulemaking process. Please feel free to contact me with any questions you may have about these comments

Best regards,
DUPONT CORPORATE REMEDIATION GROUP

Timothy S. Bingman, DABT
Principal Consultant

DuPont Corporate Remediation Group
Preliminary Comments on the Department of Ecology MTCA Issue Papers

1. Remedy Selection

General Comments:

Remedy selection must consider the site-specific conditions present at the site. The flexibility to consider site-specific factors is the key to enabling the selection of a protective and cost-effective remedy. The remedy selection process must include an analysis of the nature and extent of the contamination (from the remedial investigation), the current and future land use of the site, the potential for human and ecological exposure, and the extent to which implementation of a given remedy will, itself, result in environmental impacts.

Fundamentally, the remedy to be selected must be protective of human health and the environment. This is a threshold criterion that must be met before any other criteria are considered. Once a suite of potential remedies are identified, the selected remedy should be the one which attains the goal of protectiveness in the most cost-effective and sustainable manner.

In reviewing MTCA and the rulemaking options being considered, DuPont believes that a combination of editorial changes to improve the clarity of the Act, along with some policy revisions, are necessary to make the Act scientifically contemporary and more effective. We have provided comments to a number of the issue framing questions developed by Ecology. Not all of the questions have been addressed, however - only those for which we feel there is a need for revision to make the Act scientifically sound or more effective in attaining its goals.

Remedy Selection Issue – Question Posed	Comment / Recommended Action
Reasonable Restoration Time Frame: ▪ Should this requirement be made more prominent in the remedy selection process? ▪ Should Ecology specify that remedies that restore a site within "X" years are presumed to meet a reasonable restoration time frame?	▪ DuPont discourages the unilateral consideration of restoration time frame in remedy selection. We acknowledge that there are certain circumstances where timeliness of remedy completion is an important consideration. For example, an emphasis on expedited remedy completion should be included if the site currently poses an unacceptable risk to human or ecological receptors. If, however, site conditions are such (either prior to or after implementation of an interim action) that the existing situation is protective of human health and the environment under current and future land use conditions, then an emphasis on restoration time frame in remedy selection should be deemphasized. ▪ Ecology retains the ability to specify the remediation time frame by approving or disapproving the remediation schedule in the site's Cleanup Action Plan prepared under WAC 173-340-380. Thus, it is not necessary or appropriate to establish a default restoration time frame in the statute. ▪ Specifying a presumptive maximum time frame for site restoration could discourage the application of more sustainable remedies that harness natural processes, and which, by their very nature, work on a longer time scale.
Institutional Controls: ▪ Should the requirement to use a "quantitative scientific analysis" to demonstrate that the institutional controls reduce risks to ensure a protective remedy be eliminated?	▪ Institutional controls can be an important component in remedy selection by virtue of their ability to control future land use, and hence, future exposure potential. For example, institutional controls in the form of restrictive covenants can help to prevent a parcel of land from changing from industrial to residential use, and in so doing help to ensure the protectiveness of an industrial land use-based remedy. As such, institutional controls can be an important component of protective, effective remedies. ▪ It is useful in the feasibility study to identify that the institutional control will control or eliminate a particular pathway of exposure (e.g. preventing contact with contaminated groundwater). In some cases, a quantitative analysis can be used to show that the reduced exposure frequency associated with a particular restricted land use will enable a particular remedy to be protective. However, it is not clear that a "quantitative scientific analysis" is needed to make this demonstration in all cases. We agree that this text should be eliminated from the rule.

Remedy Selection Issue – Question Posed	Comment / Recommended Action
Climate Change / Carbon Footprint: ▪ Should greenhouse gas emissions and the impact of climate change, such as sea level rise, be factored into the remedy selection process?	▪ Large environmental cleanups often come with hidden impacts - the environmental impact of the remediation itself. Addressing contamination and preparing affected land for reuse requires substantial energy, water and other natural resources. It also may involve excavation and disposal of soil and groundwater, installation and operation of large pumps and treatment equipment, and possible discharge of carcinogens, greenhouse gases and other harmful materials into the environment. ▪ Considering the sustainability of various remedial alternatives when selecting a remedial action is a good idea, and it should be incorporated in the upcoming rule revision. However, only using carbon footprints is too narrow to adequately compare the sustainability of remedial alternatives. Large remediation projects can consume significant amounts of energy and emit large quantities of greenhouse gases. ▪ Sustainable remediation has been defined by the Sustainable Remediation Forum (SURF) as a remedy or a combination of remedies whose net benefit on human health and the environment is maximized through the judicious use of limited resources. Sustainability assessments should be flexible, site-specific, and reflect stakeholder values. Even small improvements in efficiency can reduce environmental impacts. A large number of remedial technologies already are available and are prime candidates for reducing the environmental impacts of remediation. Moreover, sustainable approaches can be applied to both new projects, and those already underway. ▪ Sustainable approaches to remediation should provide a clear net benefit to the environment. ▪ DuPont strongly encourages Ecology to explicitly incorporate sustainability as an evaluation criterion in remedy selection.

PMEP Outcome: ▪ Should a presumption be added to streamline the PMEP analysis (i.e. should a remedy that removes or treats X% of the contamination be presumed to be PMEP)?	▪ There should not be a unilateral quantitative presumption for defining PMEP. The degree to which contamination may need to be treated will be a function of the concentration of a contaminant present, the toxicity of the contaminant, and the site-specific conditions. ▪ Mandating a single percentage definition for PMEP could result in a determination that a remedy meets the test of PMEP while still not being protective. For example, consider a site with residential land use that contains a very elevated concentration of a highly toxic material. Treatment or removal of 90% of such contamination may not meet the protectiveness threshold criterion. Conversely, if an innocuous constituent were present at a relatively low concentration, it may not be practicable to address a large percentage of the contamination, and such action may not be necessary in order to be protective.
Demonstrating a Remedy is Protective: ▪ Should a new subsection be added to Section 360 describing how to determine if containment remedies are protective of human health and the environment?	▪ There is no need to incorporate this additional language. The current rule already requires documentation that the remedy be protective, whether or not it is a containment remedy.

2. ABC Framework for Cleanup Levels

General Comments:

MTCA can be improved by relying more on risk-based approaches that provide more flexibility in developing site-specific solutions. The concept of eliminating the current Method B and Modified Method C would decrease flexibility with no associated benefit. Having only one unrestricted land use "standard" would ignore the fundamental concept of MTCA, which is to use a risk-based approach to develop cleanups that are protective and cost-effective. The elimination of Methods C and B also would make the selection of the appropriate cleanup levels more difficult for less complicated sites. Finally, in the case of less complicated sites, Method A unrestricted and industrial land use default cleanup levels are useful, and should not be eliminated.

We recommend updating the rule so that it identifies an acceptable cumulative cancer risk (i.e., 1.0E-05) and noncancer hazard quotient (i.e., 1) as the primary risk management criteria. This would mean that the individual chemical risk of 1.0E-06 for the unrestricted or any other exposure scenario would be removed from the rule. This is a matter of fairness in that all sites should be treated equally in that the same level of protectiveness should apply to each site. The current approach does not provide a uniform level of protectiveness, in that one site with one constituent cannot have a cumulative cancer risk greater than 1.0E-06 (one chemical) while another site can have ten chemicals each with a cancer risk of 1.0E-06 and an allowable cumulative risk of 1.0E-05.

<u>We disagree with the recommendation to eliminate the ABC framework</u> and to replace it with a standard set of equations/procedures to be modified on a site-specific basis. However, we do recommend that the rule be clarified so that there is increased flexibility in modifying Methods B and C based on a site-specific risk-based approach that takes into account future land use and institutional controls

ABC Framework for Cleanup Levels Issue – Question Posed	Comment / Recommended Action
Modified Method B and Modified Method C: ▪ Should Modified Method B and Modified Method C provisions be eliminated? ▪ Under this option, Ecology would eliminate the Modified Method B and Modified Method C provisions. The rule text would be revised to allow people to consider site-specific information for a limited number of factors (e.g., gastrointestinal absorption fraction) when using the standard Method B. This is currently allowed under WAC 173-340-708 and is similar to the provisions in the 1991 rule.	▪ Eliminating the option to use Method B and Modified Method C would not be workable. Flexibility is critical if remedies are to be selected that are suitably protective while not resulting in disproportionate costs. ▪ Site-specific risk-based approaches are preferable in that the remedies can be tailored to the land use.
Method C: ▪ Should Method C be eliminated? ▪ Under this option, Ecology would eliminate the Method C provisions.	▪ Eliminating this option would prove to be unworkable. Eliminating Method C would result in the remediation of all sites to a residential standard, which is neither appropriate nor an effective use of limited resources.

ABC Framework for Cleanup Levels Issue – Factors to Consider When Selecting Options	Comment / Recommended Action
Exposure Pathway Format: ▪ Should Methods A, B, and C be retained and organize cleanup levels around exposure pathways? ▪ Under this option, Ecology would retain three methods of establishing cleanup levels (A, B, and C). However, each media-specific cleanup level section would be organized around exposure pathways that provide better linkage to the conceptual site model prepared during the RI/FS. Several other states (e.g., Michigan and Wisconsin) have rules that use this approach. The rule language would be supplemented with pathway-specific cleanup level tables that would be posted on the Ecology website as part of a modified CLARC database. This would be modeled on the cleanup tables prepared by the Oregon Department of Environmental Quality. These tables would facilitate the screening evaluations typically performed during the remedial investigation and feasibility study process.	▪ The problem with the current ABC approach is that there are too many restrictions on what factors can be modified. The proposed alteration would further complicate matters by providing additional tabulated values. Whenever tabulated values are used, there is an inherent presumption against modifying them. This, in turn, limits the application of site-specific information. Moreover, any time numeric criteria are incorporated into a statute it is difficult to keep the values up to date with the rapid advances in risk assessment science. For all of these reasons, we recommend against this option, as described.

ABC Framework for Cleanup Levels Issue – Factors to Consider When Selecting Options	Comment / Recommended Action
ABC Framework: ▪ Should the ABC Framework be eliminated? ▪ Under this option, Ecology would modify the rule to provide one method for establishing cleanup levels. The method would include a standard set of equations/procedures with clear direction on which parameters could be modified on a site-specific basis. Each section would be organized around exposure pathways similar to approaches used by Michigan and Wisconsin. This option is similar to the exposure pathway format, but does not include cleanup level tables in the rule. Under this option, Ecology would post pre-calculated standards based on those equations on the Ecology website.	▪ Eliminating the ABC approach has no apparent benefits. Users of the MTCA rule are familiar with the ABC framework, and eliminating it could be detrimental. ▪ The rule should be clarified so that there is increased flexibility in modifying Methods B and C based on a site-specific risk-based approach that takes into account future land use and institutional controls. ▪ We also recommend updating the rule so that it identifies an acceptable cumulative cancer risk (i.e., 1.0E-05) and noncancer hazard quotient (i.e., 1) and eliminates the individual chemical risk of 1.0E-06 for the unrestricted or any other exposure scenario. The current approach does not provide a uniform level of protectiveness, in that one site with one constituent cannot have a cumulative cancer risk greater than 1.0E-06 (one chemical), while another site can have ten chemicals each with a cancer risk of 1.0E-06 and an allowable cumulative risk of 1.0E-05. All sites should be treated equally, in that the same level of protectiveness should apply.

ABC Framework for Cleanup Levels Issue – Factors to Consider When Selecting Options	Comment / Recommended Action
Method C and Modified Method C: ▪ How frequently have people used Method C or Modified Method C to establish cleanup levels (other than industrial soils)? ▪ Has anyone used Method C since the 2001 rule amendments introduced the remediation level concept?	▪ Remediation levels have been developed and successfully applied. It is DuPont's experience that the application of these remediation levels resulted in a remedy that is protective, cost-effective and accepted by the community. The concept of remediation levels should be retained in the rulemaking.
Site-Specific Cleanup Levels: ▪ Are people able to successfully establish cleanup levels based on site-specific information?	▪ Yes, this approach has been used. This approach can require more effort, but, it is warranted at larger or more complex MTCA sites.

3. Human Health Risk Assessment Methods and Policies

General Comments:

We agree with the option of updating MTCA to retain consistency with USEPA risk assessment and cancer risk assessment guidelines. This should include recent inhalation Risk Assessment Guidance, as well as age-dependent adjustment factors for modifying cancer toxicity factors for early life exposures for genotoxic materials.

It is a significant policy issue whether to evaluate cumulative risks for all exposure pathways versus conservative assumptions for incidental soil ingestion. There are significant uncertainties associated with dermal contact exposure modeling, as well as in determining the appropriate dermal toxicity values. We recommend retaining the current approach of focusing on the ingestion pathway, and only including dermal exposure in situations where a given chemical is known to exhibit significant dermal permeability.

Human Health Risk Assessment Methods and Policies Issue – Question Posed	Comment / Recommended Action
Concurrent Exposure (dermal contact with soil): ▪ Under this option, Ecology would modify the rule to more explicitly define when and how dermal contact must be considered when establishing soil and ground water cleanup levels for some or all chemicals. Ecology is evaluating dermal and inhalation routes of exposure in risk based cleanup decisions. This includes evaluating whether and how to account for dermal and inhalation exposures that occur concurrently with incidental soil ingestion when establishing soil cleanup levels.	▪ While cleanup levels on cumulative exposure associated with ingestion, dermal contact, and inhalation can certainly be developed, our experience has been that ingestion of soil is typically the dominant route of exposure. Inhalation usually has a negligible impact on cumulative exposure/cleanup level calculations. ▪ There are uncertainties associated with dermal contact exposure modeling, as well as in determining the appropriate dermal toxicity values. Moreover, only a limited suite of contaminants penetrate the skin to a significant degree. Therefore, we recommend that dermal permeability be included as an "exception" rather than as a default exposure route.

Modifying the MTCA Cleanup Equations Based on New EPA Inhalation Risk Guidance: ▪ Under this option, Ecology would modify the equations in WAC 173-340-750 to reflect recent EPA inhalation risk guidance. Specifically, EPA stopped using oral – to – inhalation extrapolation because the inhalation toxicity values from the National Center for Environmental Assessment (NCEA) are now available on the Integration Risk Information System (IRIS). Ecology is considering discontinuing the assumption that the adverse effects from oral and inhalation exposures and the corresponding toxicity values are equivalent. This would lead Ecology to modify the MTCA cleanup equations to use the inhalation toxicity values directly. This would also include modifying the MTCA equations to reflect the toxicity metrics in the EPA guidance. Ecology is considering modifying the MTCA cleanup equations to use the inhalation toxicity values directly in the equations.	▪ The equations in WAC 173-340-750 should be modified to reflect recent USEPA inhalation risk guidance. ▪ It is inappropriate to assume route-to-route extrapolation (i.e., oral exposure to inhalation exposure) for all constituents.

4. Cleanup Levels for Lead-Contaminated Soils

General Comments:

There is new scientific information for lead that is available and that should be considered. However, an approach identified by a single state agency (i.e., California EPA Office of Environmental Health Hazard Assessment or OEHHA) should not be adopted outright unless it meets the quality of information guidelines identified in MTCA[1]. We recommend using USEPA-approved approaches, because they have undergone peer review, and because they also explicitly incorporate site cleanup policy considerations.

A key science policy question is what blood lead level is acceptable in children? This is a risk management issue that should be informed based on data from USEPA and the Agency for Toxic Substances Disease Registry. Changing the acceptable target blood level from 10 ug/dl to 1 ug/dl is a technical and policy decision similar to changing the cancer risk goal from 1.0E-06 to 1.0E-07. As such, any change in the blood-lead target concentration should be viewed as a science policy decision and subjected to the appropriate considerations due any policy decision (e.g. cost-benefit considerations, etc.)

Lead Cleanup Level Issue – Question Posed	Comment / Recommended Action
Lead Method A Cleanup Level: ▪ Should the Rule be Changed? ▪ Under this option, Ecology would not modify the Method A soil cleanup level for lead this included in the current MTCA rule. The Method A soil cleanup level for unrestricted site uses would remain 250 mg/kg.	▪ The rule should be updated to reflect the most recent USEPA biokinetic modeling for lead; but, the blood-lead risk management standard should not be modified until the underlying data have been shown to meet the quality of information guidelines in MTCA[1].

[1] WAC 173-340-702(15)

Lead Method A Unrestricted Land Use Cleanup Level: ▪ Should the IEUBK Model be used to Develop Updated Method A Value for Unrestricted Land Uses? ▪ Under this option, Ecology would use the IEUBK model to develop an updated Method A soil cleanup level for lead. The updated value would take into account recent scientific information on lead exposure and health risks.	▪ The use of the IEUBK model is appropriate for determining Method A cleanup levels. ▪ See the preceding response pertaining to modification of the blood-lead risk management standard.
Lead Method A Unrestricted Land Use Cleanup Level: ▪ Should Other Models be used to Update Method A Value for Unrestricted Land Uses? ▪ Under this option, Ecology would use another lead model to update the Method A value. Ecology could use a slope factor model to predict changes in blood lead concentrations using simple linear relationships between blood lead levels and either lead uptake (biokinetic slope factor) or lead intake (intake slope factor). Under this approach, Ecology would evaluate the soil and dust exposure at different soil concentrations and establish a soil cleanup level based on incremental risks. This approach has	▪ Models that are used to develop cleanup levels for lead should be peer reviewed and accepted by USEPA. New scientific information should be evaluated based on input from national experts. ▪ OEHHA published a document called Development of Health Criteria for Schools Site Risk Assessment Pursuant to Health and Safety Code Section 901(g): Child-Specific Benchmark Change in Blood Lead Concentration for School Site Risk Assessment" [04/17/07] in which they proposed a target blood lead level of 1 ug/dl. ▪ The California Department of Toxic Substances Control (DTSC) Human and Ecological Risk Division (HERD) is a "sister" agency of OEHHA. DTSC provided OEHHA with technical comments including the recommendation that "HERD recommends that this information be reviewed by individuals with expertise in epidemiology and statistical analysis of epidemiological studies. Specifically, review of the pooled analysis by Lanphear et al. (2005) is critical because this meta-analysis serves as the basis for the proposed chRC." Later in the comments DTSC-HERD also commented that "Given all the approximations involved, HERD feels that a thorough review by experts as discussed above is essential prior to releasing the document for public review." OEHHA responded by stating that: "As previously stated, we believe that the document has been sufficiently reviewed by experts." It appears based on OEHHA's responses to DTSC-HERD's comments that only minor changes were made to the report. DTSC-HERD is responsible

been used by ATSDR and agencies in California and New Jersey to establish lead standards and guidelines. Ecology could also use the All Ages Lead Model when EPA scientists complete model revisions in response to comments from the EPA Science Advisory Board. Ecology could also use a cancer risk model to update the soil cleanup level using a cancer slope factor developed by the California Office of Environmental Health Hazard Assessment.	for human health and ecological risk assessments for hazardous waste site cleanups in California. The fact that DTSC had significant comments on OEHHA's value demonstrates that more evaluation is needed. ▪ The approach used by OEHHA incorporates many key assumptions that were identified by DTSC-HERD in their comments. The fact that OEHHA has chosen to ignore DTSC-HERD's recommendations for involving other experts in the process is troubling in that it suggests that OEHHA is focused on an agenda rather than an open, public, scientific process. ▪ New scientific information suggesting that there are health effects when children are exposed to lower concentrations of lead is equivocal. Rather, OEHHA stated that there is not a clear cut threshold where a no-effect level from childhood exposure to lead can be identified and then used a dose-response curve and identified the upper confidence limit on the slope to estimate an incremental increase in blood lead that would cause a decrease in IQ of up to one point. As with any dose-response model, there are assumptions that drastically affect the outcome and the resulting "acceptable blood level." ▪ Changing the acceptable blood level from 10 ug/dl to 1 ug/dl is a technical and policy decision similar to changing the cancer risk goal from 1.0E-06 to 1.0 E-07. As such, any change in the blood-lead target concentration should be viewed as a science policy decision and subjected to the appropriate considerations due any policy decision (e.g. cost-benefit considerations, etc.) ▪ ATSDR has not changed their recommendation that a child blood lead goal of 10 ug/dl is protective[2]. ▪ USEPA Superfund has not changed their recommendation that a child blood lead goal of 10 ug/dl is protective[3]. ▪ The California OEHHA cancer slope factor has not been peer reviewed through the USEPA Integrated Risk Information System peer review process. USEPA states that "Quantifying lead's cancer risk involves many uncertainties, some of which may be unique to lead. Age, health, nutritional state, body burden, and exposure duration influence the absorption, release, and excretion of lead. In addition, current knowledge of

[2] http://www.atsdr.cdc.gov/toxprofiles/tp13.html#bookmark12
[3] http://www.epa.gov/superfund/health/contaminants/lead/ieubkfaq.htm

	lead pharmacokinetics indicates that an estimate derived by standard procedures would not truly describe the potential risk. Thus, the Carcinogen Assessment Group recommends that a numerical estimate not be used[4]." Therefore, the OEHHA cancer slope factor should not be used to determine cleanup levels.
Lead Method A Industrial Land Use Cleanup Level: ▪ Should the Method A value be updated for industrial soils? ▪ Under this option, Ecology would use the EPA adult lead model, a cancer risk model using the OEHHA cancer slope factor or (if available) the EPA All Ages Lead Model to update the industrial soil cleanup level for lead.	▪ The USEPA All-Ages lead model should not be used to determine industrial soil cleanup levels. Rather, the USEPA adult lead model should be used to determine industrial soil cleanup levels for lead. ▪ The OEHHA cancer slope factor should not be used to determine cleanup levels. The California OEHHA cancer slope factor has not been peer reviewed through the USEPA Integrated Risk Information System peer review process. USEPA states that *"Quantifying lead's cancer risk involves many uncertainties, some of which may be unique to lead. Age, health, nutritional state, body burden, and exposure duration influence the absorption, release, and excretion of lead. In addition, current knowledge of lead pharmacokinetics indicates that an estimate derived by standard procedures would not truly describe the potential risk. Thus, the Carcinogen Assessment Group recommends that a numerical estimate not be used[5]."* ▪ USEPA information should be given preference over California information. USEPA approaches and models are more thoroughly peer reviewed and incorporate policy choices that are consistent with MTCA. In contrast, the California Office of Environmental Health Hazard Assessment (OEHHA) develops toxicity values in the absence of specific regulatory programs or policy objectives. In other words, such criteria are developed "in a vacuum" without regard for how they will be applied. Such an approach is not appropriate for the development of new approaches under MTCA

[4] http://www.epa.gov/ncea/iris/subst/0277.htm
[5] http://www.epa.gov/ncea/iris/subst/0277.htm

From:	Stern, Jeff
Date:	Monday, August 31, 2009 10:47:42 PM
Posted At:	Inbox
Conversation:	King County DNRP MTCA issue paper comments
Subject:	King County DNRP MTCA issue paper comments
Attachments:	KC MTCA issue paper comments.doc

Attached are comments on the MTCA/SMS issue papers . Thank you for the opportunity to provide input on this important subject.

King County
Department of Natural Resources and Parks
Wastewater Treatment Division
Planning & Compliance
King Street Center, KSC-NR-0512
201 South Jackson Street
Seattle, WA 98104-3855

MEMO

August 31, 2009

TO: Martha Hankins, WA State Department of Ecology

FM: Jeff Stern, Sediment Management Program Manager

RE: Comments on the Model Toxics Control Act (MTCA) and Sediment Management Standards (SMS) Issue Paper Summaries

Thank you for providing the opportunity to comment on the MTCA and SMS Issue Paper Summaries. The comments are provided below in the format you requested to facilitate incorporation into Ecology's comment summaries.

Please note that these comments are focusing on sediment cleanup related issue papers. In general, we think that the main issues and options to be considered to address those issues have been raised in the issue papers. Our comments are provided where needed to either stress an issue or when there seemed to be another option to a particular issue that should also be considered. Lack of comment on any particular issue paper or option is not intended to be suggestive of relative importance of that issue.

We strongly recommend resolving the issues between the SMS and MTCA as these are clearly creating implementation problems that result in barriers to efficient and cost effective cleanups. Because the two regulations were originally developed independently to address different media, and only at the last minute simplistically connected in an attempt to resolve any regulatory inconsistencies, this is understandable. The need to acknowledge the fundamental differences in the distribution, fate and transport of contaminants in upland and aquatic sites is essential in developing a regulatory framework that will promote achievable and workable cleanups.

In addition, please note that further detailed promulgation of criteria, methods and process can often create more implementation problems than they resolve. Please consider an emphasis on guidance as an alternative in this revision than can provide consistency but allow for flexibility.

As one of the participants in the promulgation of the SMS, I have a clear understanding of the original intent of the SMS. I would like to participate in any technical committees that address sediment related issues which Ecology is considering convening in the development of these rule revisions. If I can be of any further assistance or you have any questions, please contact me at jeff.stern@kingcounty.gov or 206-263-6447.

August 31, 2009

Jeff Stern
King County Dept. Natural Resources and Parks
201 S. Jackson St. MS KSC-NR-0512
Seattle, Wa 98104-3855
206-263-6447
jeff.stern@kingcounty.gov

Issue Paper: Integrating the Sediment Management Standards and the Model Toxics Control Act Rules

While there is a clear need to address the inconsistencies of terminology, remediation levels and remedy selection between the two regulations, they cannot just be made similar as aquatic sites fundamentally have to be treated differently than upland sites. In part this was acknowledged in the development of the two regulations that addressed different media (as the reserved section on aquatic sediments in MTCA demonstrates). At the last minute, the regulations were simplistically cross referenced in an attempt to resolve any inherent contradictions. However, the current cross reference approach creates conflicts that cannot be solved.

The need to acknowledge the fundamental differences in both the distribution, fate and transport of contaminants and the ability to effectively control exposure pathways in upland and aquatic sites is essential in developing a regulatory framework that will promote achievable and workable cleanups. It is not clear that the existing framework can successfully address these differences.

August 31, 2009

Jeff Stern
King County Dept. Natural Resources and Parks
201 S. Jackson St. MS KSC-NR-0512
Seattle, Wa 98104-3855
206-263-6447
jeff.stern@kingcounty.gov

Issue Paper: Background Concentrations in Setting Sediment Cleanup Standards

There needs to be a clear acknowledgement of the difference in the concept of background for aquatic and upland sites built into the rules. While it is hinted at in the differences between SMS and MTCA, the implications that MTCA currently creates for application to aquatic cleanup sites is not a viable solution. Due t the human health risk levels for subsistence level fishers being below natural background, there is no cleanup solution that works for any aquatic site. This was clearly not the intent of the regulation and needs to be addressed. Therefore, bullet one under option two is clearly not a viable option and the probability that an acceptable approach to bullet two under option two could be worked out is extremely low.

August 31, 2009

Jeff Stern
King County Dept. Natural Resources and Parks
201 S. Jackson St. MS KSC-NR-0512
Seattle, Wa 98104-3855
206-263-6447
jeff.stern@kingcounty.gov

Issue Paper: Human Health Risks in Setting Sediment Cleanup Standards

Under MTCA, the approach to risk assessment at upland sites is fairly realistic and can be met. However, in the aquatic environment, bioaccumulation through the aquatic food web and both lifetime exposures and relatively high exposures create a different situation that is more related to overall environmental exposure that site related exposure. The methods used under MTCA create an unobtainable target and therefore are unworkable. A different way to address aquatic exposure is needed to realistically determine the levels of risk reduction possible at these sites.

In particular for this issue but also relevant to others, please consider an emphasis on guidance as an alternative in this revision than can provide consistency but allow for flexibility. The very detailed approach of the existing MTCA rule often creates more implementation problems than they resolve. This is critical in areas where the science is still unclear on bioaccumulative relationships that are at the heart of exposures and pathways. Becoming too prescriptive in such instances will not allow for better cleanup decisions.

See comments on the background issue paper as these two are intrinsically connected.

August 31, 2009

Jeff Stern
King County Dept. Natural Resources and Parks
201 S. Jackson St. MS KSC-NR-0512
Seattle, Wa 98104-3855
206-263-6447
jeff.stern@kingcounty.gov

Issue Paper: Remedy Selection

King County fully supports building sustainability into remedy selection. The implications that remedy choice, as with any other significant environmental decision, has on our society must be considered from all relevant endpoints. Allowing such assessments in the remedy selection phase allows the broader effects on society to be weighed into what is essentially a direct exposure risk-based process.

There needs to be flexibility built into the construct of reasonable time frame. Sites differ and a presumption of reasonable will differ with the site. Particularly, in aquatic sites there are more environmentally benign remedy options that have different implementation time frames not available to upland sites. Allowing for reasonable time frames can allow different remedial approaches to be considered in the evaluation of cleanup alternatives, where the best remedy for that site can be identified.

From:	Randell, Sydney C - Everett, WA
Date:	Monday, August 31, 2009 5:12:44 PM
Posted At:	Inbox
Conversation:	comment to Ecology regarding MTCA regulations
Subject:	comment to Ecology regarding MTCA regulations
Attachments:	CHMM_Comments_MTCA_Remedyt.pdf

August 31, 2009

Ms. Martha Hankins
Washington State Department of Ecology
P.O. Box 47600
Lacey, WA 98504

Subject: Comments regarding MTCA Issue Summary Paper on Remedy Selection Cost and Time Associated with Professional Certification.

Dear Ms. Hankins,

The Pacific Northwest Chapter and the Eastern Washington Chapter of the Alliance of Hazardous Materials Professionals (AHMP) wish to request that time and cost associated with professional certification requirements be addressed in the Model Toxic Cleanup Act (MCTA) Issue Summary Paper on Remedy Selection. We believe our request, as briefly explained below, fits the category of "modest policy clarifications." We request that the following be added to Table 2 of the Issue Summary Paper on Remedy Selection:

Current Provision	Under Consideration	Comment
Professional Certification Cost and Time. Other states have successfully reduced time and costs by environmental professionals with the Certified Hazardous Materials Manager (CHMM) credential for remedy selection and document submittals.	Should Section 840 be amended to include competency criteria for additional professional credentials such as Certified Hazardous Materials Managers (CHMM) that demonstrate appropriate knowledge and expertise regarding remedy selection and document submittals?	Should speed up remedy selection and reduce unnecessary time and cost associated with reports, plans, and specifications submitted under WAC 173-340.

Environmental professionals with the CHMM credential are trained with knowledge of how to manage hazardous material impact to the environment. Required knowledge for the exam-based CHMM credential includes regulations, industry standards, chemistry and physics, and management principles relevant to hazardous materials associated with toxic site cleanup.

Time and cost associated with professional certification requirements have been reduced in other states because environmental professionals with the CHMM credential do not need to unnecessarily obtain additional document approval from other professionals whose credential is currently specified in the MTCA regulations. In fact other states such as Missouri already recognize the CHMM credential on a par with that of Professional Engineer and Registered Geologist, http://gachmm.pluggedintech.com/CHMMauthorities.htm..

We request that the Department of Ecology similarly allow environmental professionals with the CHMM credential to assume responsibility in remedy selection and document submittals associated with the MTCA regulations. Thank you for your consideration.

Sincerely,

Sydney C. Randell 8/31/2009

Sydney C. Randell, CHMM, MBA
HQ Environmental Compliance & Risk Mitigation, US Postal Service
Sydney.c.randell@usps.gov

From:	Priscilla Zieber
Date:	Monday, August 31, 2009 3:29:41 PM
Posted At:	Inbox
Conversation:	MTCA issue paper comments
Subject:	MTCA issue paper comments
Attachments:	ABC Framework PZieber Integral.pdf Remedy Selection TMartin Integral.pdf

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To Whom It May Concern:

Attached are comments on two MTCA issue summary papers. Thank you for the opportunity to comment.

Regards,

Priscilla

Priscilla Zieber | Managing Scientist
Integral Consulting Inc. | www.integral-corp.com
411 1st Avenue S., Suite 550 | Seattle, WA 98104
Tel: 206.957.0344 | Cell: 425.894.6872 | Fax: 206.230.9601

HEALTH ENVIRONMENT TECHNOLOGY SUSTAINABILITY

August 31, 2009
Priscilla Zieber
Integral Consulting Inc.
411 1st Avenue. South, Suite 550
Seattle, WA 98104
pzieber@integral-corp.com
425-894-6872

ABC Framework for Cleanup Levels

General Comments

I agree that the number of methods, and the length and complexity of the regulation, make it cumbersome to follow and that some streamlining would assist potentially liable persons (PLPs) in determining appropriate cleanup levels (CULs). I favor an approach that eliminates the A/B/C framework and provides a table of CULs based on all of the potential exposure pathways pertinent to a given medium (Exposure Pathway Format Option). The regulation can be written to allow the PLP to argue that certain exposure pathways are not relevant to his site if he believes this is the case. Such arguments have already been written into the regulation in the form of the empirical demonstrations for leaching and residual saturation and the off-ramps for the terrestrial ecological evaluation. Similar arguments could be written into the regulation for groundwater and soil vapors.

Specific Comment

Eliminate Method C Option: Although Method C might not be used for groundwater and surface water, direct contact under industrial land use does have some usefulness for setting soil CULs and should be retained as an option, whether it is called Method C or whether it is offered in some other form.

August 31, 2009
Todd Martin
Integral Consulting Inc.
2225 E. Murray-Holladay Rd., Ste 107
Salt Lake City, UT 84117
tmartin@integral-corp.com
801-277-6690

Remedy Selection

General Comments

I agree with Ecology's problem statement that most of the debate around remedy selection centers on provisions requiring "use of permanent solutions to the maximum extent pacticable" and a "reasonable restoration timeframe". Although this is acknowledged, it is not clear that the proposed rule modifications will go a significant way towards addressing the issues. It is my opinion that the debate engendered around these provisions centers around the implications that these provisions have in constraining the remedy selection process. Both of these provisions are generally appropriate; however, if applied too rigidly, these provisions can hamper the remedy selection process and prevent the selection of less aggressive/invasive remedies that are equally protective, more cost effective, and more environmentally appropriate (e.g., with respect to carbon emissions/climate change, resource and energy usage).

Collectively, these criteria place regulators in the position to favor more aggressive treatment and/or removal options that are intended to reduce contaminant mass rapidly. Although this is an appropriate and desirable outcome, several less aggressive technologies, such as vapor extraction, containment, groundwater extraction, bioremediation, and monitored natural attenuation can achieve an equally appropriate remediation end point. The current MTCA regulation acknowledges that selection of the remediation alternative that uses permanent solutions to the maximum extent practicable is not always possible, and attempts to address this through "disproportionate cost analysis". This analysis approach provides a reasonable means by which to evaluate the relative cost and benefits of various remedies. However, the analysis is highly, and necessarily, subjective and thus is a source of debate between stakeholders. The majority of the factors to be considered during this analysis cannot be reliably evaluated in a quantitative manner and comparison of the costs/benefits within and amongst remedies can be influenced by the personal views of the stakeholders involved. Although there is no straight forward approach to improve this analysis, it is my opinion that the emphasis placed on permanent solutions and short remediation time frames, tends to bias the process towards remedies that may not be the best alternative for the site and the environment.

Finally, as is acknowledged in Table 3, the current regulations do not account for the potential influence of the selected remedy on climate change. Global climate change and

sustainability are widely becoming recognized as being of critical importance to our future; and there is a growing emphasis being placed on sustainable "green" remediation technologies. Many of these technologies involve in-place remedies and longer remediation time frames; and thus the current MTCA regulation, though unintentionally, tends to disfavor the selection of these technologies.

Comments to Changes Identified in Table 1

I agree that the editorial and simple structural changes listed in Table 1 are reasonable. However, it is unclear how the proposed "moving up" of the Reasonable Time Frame language would be implemented without compromising the emphasis currently placed on other important language on regulatory requirements (i.e., if this language is to be moved up, other language has to be moved down).

Comments to Changes Identified in Table 2

Item 2: Cost Analysis – I agree that it is a good idea to establish a default inflation rate; however, Ecology should engage industry and other stakeholders in establishing this rate.

Comments to Changes Identified in Table 3

Item 2: Reasonable Restoration Time Frame – I am leery of establishing a presumption that a remedy restore a site within X (e.g., 5) years, as suggested by this proposed change. As discussed above, this will place considerable bias towards more aggressive remedies that are intended to achieve cleanup rapidly. These remedies are often more costly and less sustainable/green. In my opinion, although establishing the proposed presumption would provide clarity for the regulation, it will be counter-productive.

Item 3: Climate Change/Carbon Footprint – Agreed that the regulation needs to encompass these considerations. However, doing so will also require that Ecology understand that such a criterion is often counter to the criteria of permanent solutions and short remediation time frames.

Item 4: PMEP Outcome – It is proposed that a default presumed percent removal/treatment be achieved to clarify what is meant by use of permanent remedies to the maximum extent practicable. Such a presumed level would also add clarity to the regulation, but would likely in the end be a source for considerable debate. Such calculations are fraught with uncertainty and would not be evenly applied across sites. Further, such a presumptive level of removal/treatment will place further emphasis on aggressive remediation technologies that are not necessarily cost effective or sustainable/green.

From:	nels cone
Date:	Monday, August 31, 2009 12:02:53 PM
Posted At:	Inbox
Conversation:	Comments regarding MTCA Issue Summary Paper on Remedy Selection Cost and Time Associated with Professional Certification
Subject:	RE: Comments regarding MTCA Issue Summary Paper on Remedy Selection Cost and Time Associated with Professional Certification

Dear Ms. Hawkins-

I would like to follow up with you later this week to see how many people contacted you about the CHMM credential - MTCA policy modification issue described below.

Thank you in advance-

Nels Cone

206-985-7838

From: nels.b.cone@hotmail.com
To: ruleupdate@ecy.wa.gov
Subject: Comments regarding MTCA Issue Summary Paper on Remedy Selection Cost and Time Associated with Professional Certification
Date: Thu, 27 Aug 2009 18:15:07 -0600

August 27, 2009

Ms. Martha Hankins
Washington State Department of Ecology
P.O. Box 47600
Lacey, WA 98504

Subject: Comments regarding MTCA Issue Summary Paper on Remedy Selection Cost and Time Associated with Professional Certification.

Dear Ms. Hankins,

The Pacific Northwest Chapter and the Eastern Washington Chapter of the Alliance of Hazardous Materials Professionals (AHMP) wish to request that time and cost associated with professional certification requirements be addressed in the Model Toxic Cleanup Act (MCTA) Issue Summary Paper on Remedy Selection. We believe our request, as briefly explained below, fits the category of "modest policy clarifications." We request that the following be added to Table 2 of the Issue Summary Paper on Remedy Selection:

Current Provision	Under Consideration	Comment
Professional Certification Cost and Time. Other states have successfully reduced time and costs by utilizing environmental professionals with the Certified Hazardous Materials Manager (CHMM) credential for remedy selection and	Should Section 840 be amended to include competency criteria for additional professionals with the Certified Hazardous Materials Managers (CHMM) credential that demonstrate appropriate knowledge and expertise regarding remedy selection	Should speed up remedy selection and reduce unnecessary time and cost associated with reports, plans, and specifications submitted under WAC 173-340.

document submittals.	and document submittals?	

Environmental professionals with the CHMM credential are trained with knowledge of how to manage hazardous material impact to the environment. Required knowledge for the exam-based CHMM credential includes regulations, industry standards, chemistry and physics, and management principles relevant to hazardous materials associated with toxic site cleanup.

Time and cost associated with professional certification requirements have been reduced in other states because environmental professionals with the CHMM credential do not need to unnecessarily obtain additional document approval from other professionals whose credential is currently specified in the MTCA regulations. In fact other states such as Missouri already recognize the CHMM credential on a par with that of Professional Engineer and Registered Geologist, http://gachmm.pluggedintech.com/CHMMauthorities.htm..

We request that the Department of Ecology similarly allow environmental professionals with the CHMM credential to assume responsibility in remedy selection and document submittals associated with the MTCA regulations. Thank you for your time and consideration.

Sincerely,

Nels B. Cone

Project Manager – Delta Environmental
Post Office Box 85418
Seattle WA 98145
206-985-7838

P.S. a word document version of this email is attached for your convenience.

With Windows Live, you can organize, edit, and share your photos. Click here.

Windows Live: Keep your friends up to date with what you do online. Find out more.

From:	Betsy Day
Date:	Monday, August 31, 2009 1:59:27 PM
Posted At:	Inbox
Conversation:	Issue Paper Comment
Subject:	Issue Paper Comment
Attachments:	TEE_Issue_Paper_Comments.pdf

Attached please find comments on the TEE issue paper.

Betsy

Betsy Day | Vice President
Integral Consulting Inc. | www.integral-corp.com
411 1st Avenue S., Suite 550 | Seattle, WA 98104
Tel: 206.957.0346 | Cell: 206.769.4672 | Fax: 206.230.9601

HEALTH ENVIRONMENT TECHNOLOGY SUSTAINABILITY

August 31, 2009
Les Williams
Integral Consulting Inc.
411 1st Avenue. South, Suite 550
Seattle, WA 98104

Title of Issue Paper: ***Terrestrial Ecological Evaluations***

General Comments

Individually, the *Problem Statement* and *Overview* sections provide an adequate synopsis of the issues concerning the Terrestrial Ecological Evaluation (TEE) sections of MTCA. However, organizationally the document would benefit by transposing the order in which these two sections appear. The *Overview* should appear first to provide a brief explanation of the TEE process and to note the existence of new scientific and regulatory information. The *Problem Statement* would then indicate limitations in the current TEE process and the importance of the new information. Such organization would effectively lead the reader from a general understanding of the TEE process to the specific problems with that process and possible solutions to those problems in the subsequent list of options and issues.

Overall, the TEE process is generic and is not overly conservative once it moves beyond the simplified assessment, which by itself is prescriptive and out of date. A more generic approach is preferred because it allows the most flexibility in looking at a site and making judgments from the ecological perspective. The major complaint about the TEE process is that it seems overly convoluted and obtuse in how it is written and presented. This issue is addressed below by acknowledging Option 1 and by adding several options; one to diagram the TEE in a decision framework and another to present it in a more conventional and up to date manner that is readily understood at least by the risk assessors and risk managers who have to implement the regulation.

Comments on Options

Four rulemaking options are offered:

1. Editorial and Simple Structural Changes
2. Updating the Ecological Screening Tables
3. Integrating, Policy Clarifications and Decision Roadmap
4. Combination of 1-3 above.

Although Option 1 is attainable by itself, it seems largely cosmetic and would not address the substantive issues raised in the *Problem Statement*. The editorial and structural changes suggested in Option 1 will most likely occur as a natural consequence of changes made pursuant to Options 2-4. The substantive issue that is not addressed in Option 1 is identified in the second bullet of the Problem Statement, which states "Many consultants and site managers find it difficult to understand and interpret the requirements for performing a TEE." Proposed Options 4 and 5 addresses this issue below (see *Suggested Options*).

Options 2 and 3 complement one another. Option 2 addresses the toxicity reference values used in ecological risk assessment. Option 2 is important by itself because it would effectively update the simplified TEE and align it with the site-specific TEE, which is already sufficiently flexible to accommodate new scientific information and advances made by EPA and others.

Option 3 contains a wide range of issues and should be divided to separately address technical issues pertaining to how exposure is determined (e.g., intermittent streams and watersheds) and procedures and policies pertaining to cleanup goals or jurisdictional issues (e.g., net environmental benefit).

Suggested Options

1. Divide Option 3 into Option 3A (updating methods of exposure) and Option 3B (risk management policies and definitions).
2. Option 4 – Incorporate a flow chart that diagrams the TEE framework and key decisions. A flow chart would specifically address the second bullet in the *Problem Statement*, which states "Many consultants and site managers find it difficult to understand and interpret the requirements for performing a TEE." Many ecologists fluent in EPA's (and many other States') paradigm for ecological risk assessment are likely to find the TEE regulation initially daunting because it is expressed largely as a decision process beginning first with exclusions, then proceeding to criteria for the more-detailed site-specific TEE, leaving the simplified approach for everything that doesn't qualify pursuant to the provisions for exclusion or site-specific evaluation.
3. Option 5 – Revise the regulation to more completely integrate the ecological risk assessment paradigm provided in EPA's (1997) guidance with the regulation, while retaining the exclusions of WAC 173-340-7491. Although many of the pieces of EPA's guidance are already included in the TEE, they are not well coordinated or dynamically linked. For example, it is clear that the simplified TEE parallels EPA's screening level ecological risk assessment and the site-specific TEE parallels EPA's baseline ecological risk assessment. However, the simplified TEE is written prescriptively in regulation, effectively isolating it from periodic updates and better information available to the site-specific TEE, which is written flexibly and intended to use new scientific information and advances made by EPA and others (see Option 2 above). Closer adherence to the more globally used risk assessment paradigm could also clarify the process for the benefit of risk assessment and risk management specialists who might otherwise "find it difficult to understand and interpret the requirements for performing a TEE" as indicated in the *Problem Statement*.

References

EPA. 1997. Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments. EPA 540-R-97-006. U.S. Environmental Protection Agency, Solid Waste and Emergency Response, Washington, DC.

From:	Betsy Day
Date:	Monday, August 31, 2009 1:58:12 PM
Posted At:	Inbox
Conversation:	Comments on MTCA and SMS Issue Summary Papers
Subject:	Comments on MTCA and SMS Issue Summary Papers
Attachments:	Background in Setting Standards Issue Paper Comments.pdf Bioaccum Chemicals Issue Paper Comments.pdf Fish Consumption Rates Issue Paper Comments.pdf Freshwater Sediment Standards Issue Paper Comments.pdf Human Health Risk in SMS Issue Paper Comments.pdf Integrating SMS and MTCA Issue Paper Comments.pdf Other Deleterious Substances Issue Paper Comments.pdf

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Attached please find comments on many of the issue papers related to updating MTCA and the SMS. These comments are submitted on behalf of the City of Seattle. We look forward to tracking and providing input to this complex and challenging process.

Betsy

Betsy Day | Vice President
Integral Consulting Inc. | www.integral-corp.com
411 1st Avenue S., Suite 550 | Seattle, WA 98104
Tel: 206.957.0346 | Cell: 206.769.4672 | Fax: 206.230.9601

HEALTH ENVIRONMENT TECHNOLOGY SUSTAINABILITY

August 31, 2009

David Schuchardt

Seattle Public Utilities

700 5th Ave, Suite 4900

P.O. Box 34018

Seattle, WA 98124-4018

Issue Paper: *Integrating the Sediment Management Standards and MTCA Rules*

General Comments:

Reference is made to "background" in several places. SMS does not define background, while MTCA rules define both "area background" and "natural background," and have conditions on which of these background types can be used in MTCA remedy selection. This is discussed in another issue paper (Background Concentrations in Setting Sediment Cleanup Standards). The issues described in that paper are linked to the options considered in this paper, and the relative merits of options in this paper may vary depending on how the background options are resolved. A text box describing the links between the two issues papers should be drafted and inserted into both of the two papers. The term "background" should generally be preceded by either "area" or "natural," with definitions provided on the issue paper as a footnote for clarity.

The Sediment Phthalate Work Group, consisting of representatives of the Washington State Department of Ecology, U. S. Environmental Protection Agency, the Cities of Seattle and Tacoma, and King County, submitted their "Summary of Findings and Recommendations" in September of 2007. One of the recommendations of the Work Group was to consider an SMS rule amendment to address phthalates and other pervasive pollutants. The Work Group recommended:

- Exploration of the potential for an SMS rule amendment, to add consideration to SMS for addressing pervasive pollutants, such as protocols for making decisions regarding the cleanup trigger for phthalates and similar pollutants
- Consideration of a narrative criteria that could be added to SMS based on additional information collected in the Work Group. In doing so, think through MTCA/SMS relationships
- Consider parallel actions under Superfund.

The current rule-making process and related revisions to MTCA and the SMS provide a unique opportunity for acting on this recommendation and the City encourages such an effort to improve the management of phthalates and other similar, pervasive pollutants in sediments.

Specific Comments

In numerous places (e.g., Table 1, Table 2, bullet 2 on page 9), the provisions of WAC 173-204-570(4) for selection of sediment cleanup standards are misrepresented as being limited to "cost" or "cost and feasibility." This characterization is incomplete, and may bias communication of this topic during the rulemaking process. WAC 173-204-570(4) states "In all cases, the cleanup standards shall be defined in consideration of the net environmental effects (including the potential for natural recovery of the sediments over time), cost, and engineering feasibility…" Considering all three of these factors (not just cost and feasibility) is an important provision of the SMS that reflects the need for greater flexibility than provided by the MTCA process when setting cleanup standards for sediments.

Table 2, column 2, row 4. WAC 173-204-560 does not refer to human health risk assessment for setting sediment cleanup standards. Also, WAC 173-204-570(4) states "In all cases, the cleanup standards shall be defined in consideration of the net environmental effects (including the potential for natural recovery of the sediments over time), cost, and engineering feasibility…"

Table 2, Selection of Alternatives. The SMS includes provisions for sediment recovery zones (WAC 173-204-590) which can be part of an overall management strategy for cleanup decisions under WAC 173-204-580. The role of sediment recovery zones should be considered in evaluating the options described in this issue paper, along with possible revisions to WAC 173-204-590 to facilitate use of this option when managing complex sites.

Page 9-10, Cleanup Standards Options:

- Cleanup standards that address human health through seafood consumption pathways would likely have different points of compliance than the existing benthic standards (e.g., area-weighted average concentrations vs. point concentrations). This should be acknowledged.

- Currently, enormous amounts of time, money, and resources are spent on human health exposure and risk assessments and background determinations for each and every sediment site. However, invariably for persistent bioaccumulative compounds like PCBs, actual cleanup decisions must be based on practicability factors. These include achievable concentrations in urban areas (i.e., a realistic measure of Area Background), net environmental effects (including the potential for natural recovery of the sediments over time), cost and engineering feasibility. Approaches that dwell on creating risk

assessment "process" for these chemicals may not improve decision-making, provide needed flexibility, or speed cleanups.

- For the 3rd and 4th options, it appears that "universal" sediment concentrations would be established that correspond to a risk level. An alternate approach would be to articulate a range of target human health risks for developing site-specific SQS/MCUL, similar to EPA's risk range. These would be very different approaches with different merits.

- For the 4th option, use of a "Human Health Upper Level" may provide some flexibility, but for some chemicals the resulting calculated sediment concentrations may still be below achievable concentrations.

- For any option, it is strongly recommended that no sediment cleanup standards be established at concentrations below what is technically achievable. A realistic measure of area background should serve as the lower limit for establishing cleanup standards.

Factors to Consider When Selecting an Option. It is unclear why an "option" would be favored if it "provides enhanced opportunities for public involvement," unless this factor applies only to the public participation reporting elements in Table 2. No "options" are presented for public participation rule changes.

August 31, 2009
Les Williams
Integral Consulting Inc. on behalf of the City of Seattle
411 1st Avenue. South, Suite 550
Seattle, WA 98104

Title of Issue Paper: *Human Health Risks In Setting Sediment Cleanup Standards*

General Comments

Individually, the *Problem Statement* and *Overview* sections provide an adequate synopsis of the issues concerning development of sediment cleanup standards that protect human health. However, organizationally the document would benefit by transposing the names of these two sections. The information provided in the existing *Problem Statement* is background material that should be renamed *Overview*. The information provided in the existing *Overview* section is a statement of issues and options and should be renamed as the *Problem Statement*. Also, the existing *Overview* section provides a synopsis of only two of the three options that will be considered in subsequent sections of the document. For a consistent transition, this section should list all of the options that are subsequently presented and discussed in more detail.

The renamed *Overview* section should be presented first to provide a history of the SMS and the role of human health risk assessment. This should be followed by the renamed *Problem Statement* to recognize the impact of differences between SMS and MTCA and the need to reconcile those differences in developing a human health risk assessment methodology for SMS.

In the existing *Problem Statement*, Ecology states (p.1) that "new information and guidance documents that are relevant to human health protection have recently been published by other agencies." Understanding of the current state of the science is a critical factor in developing health-risk based sediment cleanup standards that are technically meaningful and defensible. However, there is a great deal of variability in the quality of information and bias in the vast gray literature of guidance documents. Consequently, guidance documents developed by other agencies or programs should be critically reviewed to assure that they meet requirements of scientific objectivity and the specific needs of SMS.

Comments on Options

Three rulemaking options are offered:

1. How the decision for sediment cleanup standards will be made.
2. The level of protection
3. The technical and procedural details for setting sediment cleanup standards.

Comments on each are provide below.

<u>Option 1. Decision-making framework in setting cleanup standards.</u>

Option 1 relies heavily on Figure 1, which is identified as a decision making framework. Figure 1 should be renamed because is not a functional decision framework. It is simply a conceptual cartoon attempting to portray differences and similarities between the MTCA approach and the SMS approach. Although the options portrayed in the figure attempt to show differences between SMS and MTCA, there seems to be very little difference among them.

The do nothing option is the status quo. This option is comprehensive in the sense that it implies a complete human health risk assessment for those sites with substantive contamination and viable human exposure pathways.

The next two options parallel MTCA B (one-level-of-protection option) and MTCA C (alternate-level-of-protection option). If the goal is to achieve regulatory consistency with MTCA, then this is in reality only a single option and both MTCA B and MTCA C should be considered.

The range-of-acceptable-values option provides for a range of values that bridge the gap between a no-observed-effect level (i.e., the SQS) and a lowest-observed effect level (i.e., the CSL). However, this option is really no different than the one-level-of-protection and the alternate-level-of-protection options above. The one-level-of-protection option is in effect a de-minimis risk level for either an individual chemical or an accumulation of chemicals, whereas the alternate-level-of-protection option is established at a higher than de-minimis level under certain circumstances.

An important option is missing. The numerical standards (the SQS and the CSL) in the SMS are not dose-responsive and are based on exposures to mixtures of chemicals and a heuristic framework designed to assign a likely concentration for individual chemicals above which toxicity would always be observed. Consequently, the chemical-specific numeric SMS and SQS values may have substantial uncertainty. To compensate for this uncertainty, SMS provides for confirmatory toxicity testing. The analogous level of confirmation for human health would be to allow a comprehensive risk assessment and probabilistic risk analyses that relaxes the RME assumptions inherent in simplified calculation of sediment quality values.

Option 2. Level of Protection.

Ecology asks three questions concerning the level of protection. Comments for the options provided for each of these questions are provided below.

What is the best approach for specifying the level of protection for human health?

Ecology lists five options in addition to the status quo or do-nothing option to address various issues concerning the degree of exposure, and multiple exposure pathways and routes, including ingestion of aquatic organisms. These five options are not mutually exclusive and fall into three general categories:

1. Develop an acceptable risk range based on either MTCA or EPA methods
2. Develop sediment criteria based on chemical bioaccumulation in edible aquatic organisms
3. Develop exposure input parameters for the significant exposure pathways and most susceptible human populations.

Options for an acceptable risk range are reasonably framed and related to those discussed above for Option 1. The EPA risk range approach allows for more flexibility and can accommodate variability in toxicity (reference doses and slope factors) among individual chemicals, especially those that may occur naturally or are ubiquitous industrial age contaminants. This is an important consideration because simplified calculations for a fixed level of risk scaled to these toxicological benchmarks can generate cleanup levels that are far below a background concentration, suggesting that the de-minimis risk level may be closer to the higher end of the risk range.

Options for sediment criteria based on chemical bioaccumulation in edible organisms should be addressed separately because they are not related to level-of-protection issues. The broader question is whether multimedia exposure in general, which could include ingestion of aquatic organisms, should be included in calculation of health-based sediment quality standards. Chemical concentrations in aquatic organisms may not be an appropriate or feasible endpoint for setting sediment quality standards and clean up levels for most chemicals due to the inherent complexity and uncertainty in bioaccumulative relationships. In theory, relationships that accurately represent the relative contributions of water, sediment and diet to fish tissue concentrations for a small subset of highly bioaccumulative chemicals could be used to derive screening levels for sediment for sentinel species in representative habitats (e.g., riverine, estuarine, marine and lacustrine). In practice, such exercises are often futile because the theoretical relationships are highly complex and are driven to extreme values by models that are neither calibrated nor validated for the site-specific conditions being evaluated.

Options for exposure input parameters are important for any risk assessment. However, the manner in which this option is expressed conveys an inherent bias in supposing a priori which exposure pathways will be significant and which human populations are most susceptible. Consequently, the issue and option should be rephrased to address all pathways and populations.

<u>How will background concentrations be considered when setting sediment cleanup standards?</u>

Background is an important and controversial issue in understanding incremental risks that could be attributed to sediments and in establishing meaningful cleanup levels. The range of options with respect to sediments focuses on methods of calculation of natural background and geospatial variability in background. These options should be expanded to specifically include consideration of globally ubiquitous, anthropogenic contaminants as expressed in the issues paper entitled *Background Concentrations In Setting Sediment Cleanup Standards*.

<u>Which parts of the SMS rule should be revised?</u>

The three options presented here are do-nothing, limited revision of the sediment cleanup standards section of the rule, and revise all relevant sections of the rule. Consideration of a limited-revision option does not seem practical and may create more problems of inconsistency with the other sections of the SMS than it solves.

<u>Option 3. Procedures – What are the processes and technical details needed to provide clear, consistent implementation?</u>

This option addresses the procedural details of many of the issues raised previously in Options 1 and 2. Beyond the do-nothing option, the procedural issues essentially fall into three general categories:

1. Bioaccumulation testing to determine risk associated with chemicals in aquatic organisms.
2. Methods (formulas) to calculate safe concentrations in sediments.
3. Whether health-based sediment quality values should be addressed in guidance or in rule making.

The bioaccumulation testing option seems to have no real bearing on the calculation of a health-based sediment quality value and seems more relevant to sampling, analysis, and other acceptable methods for assessing bioaccumulation. The bioaccumulation option assumes that valid predictive relationships exist and have effectively established a secondary sediment quality standard that can be expressed as a concentration in edible aquatic organisms. As indicated in the discussion of Option 2 above, sediment criteria based on chemical bioaccumulation in edible organisms should be addressed separately because the inherent complexity of such relationships, even for well known bioaccumulative substances, may in practice preclude calculation of a sediment quality standard that could be meaningfully applied on a site-specific basis.

The methods-and-formulas option should be revised to make it more generic. It is obvious that any health-based sediment quality standard will need to be documented in the form of the specific assumptions, input parameters and expressions adopted in their calculation. However, this option is expressed in the context of a health-based sediment quality standard that is specifically based on bioaccumulative pathways and the use of biota-sediment accumulation factors. The option should be broadened to consider:

- The degree of dependence that a health-based sediment quality value would have on bioaccumulative relationships
- Whether bioaccumulation can be meaningfully incorporated into such calculations, and
- In the absence of useful bioaccumulative relationships, whether a health-based standard should be calculated at all.

The guidance-versus-rulemaking option seems to acknowledge the complexity and inherent uncertainties associated with the calculation of a health-based sediment quality standard. With the technical difficulties identified above, incorporation of human health-based criteria into any upcoming SMS rule revision seems premature. Developing guidance on how to derive the criteria should be given higher consideration, and may be challenging enough for future SMS changes.

Factors to Consider

Ecology lists seven factors to be considered in balancing a number of issues and interests. An eighth factor should be added to this list, which is to prioritize issues based on feasibility or strength of technical information presently available. Although, the Issue Paper identifies numerous options to consider in the development of human health criteria for sediments, it does so without selecting or identifying preferences based on

technical merits or feasibility. The complexity of some of the issues presented in the various options may preclude any approach that could be meaningfully written into regulation.

August 31, 2009
Jennifer Sampson
Integral Consulting Inc. on behalf of the City of Seattle
411 1st Avenue. South, Suite 550
Seattle, WA 98104

Title of Issue Paper: *Freshwater Sediment Standards*

General Comments

The Overview repeats most of the information in the Problem Statement. Consider eliminating the repetition to make the paper more succinct.

Consider adding live links to this and other issue papers for reviewers interested in greater technical depth or policy background. For example, the numeric standards developed by RSET are referenced in the issue paper. A hotlink to a website or document listing these values, and the statistical methods used for their derivation, would provide a more substantive basis for evaluation of this issue by the public. Hotlinks are used in other issue papers, and could be helpful here.

Generally, fundamental differences between approaches to development of freshwater sediment standards and approaches used to develop marine SMS, and the underlying policy differences, should be clearly and specifically addressed in this issue paper or in a separate issue paper. For example, nowhere among the options is it made clear why the application of "only" numeric standards, or "only" biological standards is being considered. If these options, each of which would differ from the marine SMS, are genuinely being considered, some justification and the appropriate background information should be provided to address this significant shift from the policies guiding development of the marine SMS. Implications of using a different technical approach, and therefore a different underlying policy, for setting freshwater sediment standards also should be completely addressed. For example, will the application of a fundamentally different approach to freshwater standards lead to subsequent costly revisions to the marine SMS? How will a revised set of marine SMS affect sites that have been cleaned up using the existing SMS? These issues are relevant to the feasibility of Options 1 and 2 presented in this issue paper.

The "Do nothing and continue case-by-case evaluation" option in the Overview is not presented/discussed in the Options section. A discussion should be added in which the pros and cons of the current approach is defined so other options can be compared to more clearly define the added benefits of proposed changes.

The Options provided do not seem like a set of independent alternative regulatory paths, but together are more like a list of steps towards development of freshwater standards. For example, "Clarify how chemical or biological standards will be applied to evaluate contaminated sediment sites" should not be considered optional. It will be required once the policy and methodological path have been defined. Consider reorganizing this issue paper to describe options for each of the first three possible approaches currently listed as

Options. Under each of these, the options for using professional judgment to determine the need for biological tests, or to require the tests, etc (Option 4) could be addressed.

Specific Comments

Option 1a. This Option should identify the specific "recent scientific literature" that would be reviewed under this option. Many published papers providing sediment quality guidelines use or propose methods for deriving guidelines that have fundamental methodological differences from the methods used to derive Washington's marine SMS. Methodological differences result in differences in the effectiveness and the environmental meaning of the standard. Specifying the literature being considered for this review would provide greater clarity about Ecology's potential scientific directions, facilitating more directed and relevant public comment.

Option 1b. More information on the considerations to be used in evaluating different approaches for developing freshwater standards would be useful. For example, will Ecology include policy considerations (such as "methodological consistency with marine SMS"), or will it focus on technical considerations (such as predictive accuracy of the method)? Ecology should provide some or all of the criteria to be used to evaluate the different approaches, or at least provide an indication of how considerations will be weighted (e.g., "policy considerations will have more weight than scientific or methodological considerations").

Options 4b and 4c. State policies that depend upon Best Professional Judgment will likely generate inconsistencies in the investigation requirements, cleanup requirements, and extent of the process leading to cleanup among sites. If guidelines will be developed for such judgments and thereby limit this effect, they should be specified here.

August 31, 2009
Priscilla Zieber
Integral Consulting Inc. on behalf of the City of Seattle
411 1st Avenue. South, Suite 550
Seattle, WA 98104

Issue Paper: *Fish Consumption Rates for High Exposure Population Groups*

General Comments

Ecology is to be commended for addressing fish consumption rates for population groups that consume large amounts of fish and shellfish. In Washington State, we are fortunate to have many high quality fish consumption studies to support Ecology's deliberations on this topic. We agree that the recreational angler is often not representative of the reasonable maximum exposure (RME) consumer for many water bodies, and we also support reliance on regionally representative studies in assessing fish consumption.

We have concerns, however, regarding the application of fish consumption rates in the derivation of surface water clean up levels. These concerns are focused on the overly simplistic assumption that chemical concentrations in surface water can be related to fish concentrations by applying a bioconcentration factor (BCF) with fish consumption rates. Studies have shown that bioaccumulation of chemicals in fish varies by the chemical, the concentration of the chemical in water, the type of organism, and the trophic level of the fish species, so one BCF cannot be used to represent all fish consumption scenarios. As described in EPA's Metals Framework document (*Framework for Metals Risk Assessment,* 2007, http://www.epa.gov/raf/metalsframework/index.htm), an accurate assessment of bioaccumulation will need to be represented by a regression equation or some other algorithm rather than a simple constant.

Furthermore, uptake of certain chemicals into fish is linked more closely to dietary and sediment exposures than to water concentrations, supporting the importance of the issues discussed in the papers titled "Human Health Risks in Setting Sediment Cleanup Standards" and "Ecological Risks from Bioaccumulative Chemicals in Sediment". To be accurate, different algorithms would need to be used for finfish vs. crustaceans, for freshwater vs. estuarine and marine settings, and for different trophic levels. The implication of these facts is that one overarching fish consumption rate may not be a useful tool in deriving surface water cleanup levels (or sediment cleanup levels). We recognize that the level of complexity in these relationships is not desirable in a regulatory setting. A regulatory approach directed toward one or more sentinel species, might be both more feasible and more technically accurate.

Given the complexity of these issues, we support the rulemaking option of developing guidance materials for fish consumption rates. We do not believe that default fish consumption rates can be developed before Ecology fixes the scientifically invalid approach to deriving surface water clean up levels. This guidance should recognize that the BCF approach is not a valid option. We encourage Ecology to consider an approach of selecting sentinel species having limited home ranges that might best represent

potential exposures for different water bodies and different receptor populations. We recognize that this approach does not provide a simple method of establishing surface water clean up levels. Nevertheless, these critical scientific issues must be addressed in any new rulemaking.

August 31, 2009
Dreas Nielsen
Integral Consulting Inc. on behalf of the City of Seattle
411 1st Avenue. South, Suite 550
Seattle, WA 98104

Title of Issue Paper: *Ecological Risks from Bioaccumulative Chemicals in Sediment*

Comments

1. The issue description refers to "predictable sediment cleanup standards." This language is unclear. Is it Ecology's intent that fixed sediment cleanup standards will be established for bioaccumulative chemicals, or will dischargers have to predict (i.e., calculate) the appropriate standards based on site-specific data?
2. The current approach can be considered to be following a narrative standard for evaluation of risks. Therefore, the option "Develop a narrative standard…" is not clearly distinguished from the first option ("Continue using the current approach"). If Ecology anticipates developing a narrative standard that is consequentially different from the current approach, more information about the expected nature of the new standard is necessary to evaluate that option.
3. The option "Adopt numeric criteria…" is ambiguous. Very likely it refers to numeric criteria for sediment chemicals, but clarification is necessary.
4. The wording of the options "Adopt numeric criteria…" and "Adopt biological criteria…" might lead some readers to believe that there are well-established criteria that can simply be adopted. The issue paper should make clear that selecting either of these options would require substantial effort to develop those criteria.
5. Chemical, physical, and biological conditions all affect the applicability—and development—of sediment- or tissue-based criteria. For example, different criteria for a single chemical are likely to be needed for different taxa and for environments with differing salinity, TOC, and other conditions. These complexities are not acknowledged in the issue paper. The "Factors to Consider" section of the white paper should also include: a) the state of scientific knowledge about bioaccumulation processes for particular chemicals, b) the level of effort necessary to assemble such knowledge, and c) available Ecology staff resources.
6. Another option that might be considered is for Ecology to develop better support for standardization of the current approach. This could include guidance regarding the application of statistical models, bioavailability models, and food web models, or compilation of information relevant to those applications, such as model parameters.

August 31, 2009
Jennifer Sampson, Dreas Nielsen
Integral Consulting Inc. on behalf of the City of Seattle
411 1st Avenue. South, Suite 550
Seattle, WA 98104

Title of Issue Paper: *Background Concentrations in Setting Sediment Cleanup Standards*

General Comments
MTCA rules specifically define both "area background" and "natural background," and have conditions on which of these background types can be used in MTCA remedy selection. Background is discussed in another issue paper (*Integrating the Sediment Management Standards and MTCA Rules*). The options described in that paper are linked to the issues considered in this paper. A text box describing the links between the two issues papers should be drafted, and inserted into both of the two papers.

The MTCA definitions of "area background" and "natural background", and the SMS description of "non-anthropogenically affected sediment quality" generally embody similar concepts, but use different language. The issue paper should clarify whether Ecology a) considers the concepts to be equivalent or b) considers the different definitions to represent different concepts. If Ecology considers the concepts to be different, then further description of these perceived differences is needed.

One way in which the different definitions may be considered to refer to different concepts is with regard to spatial and temporal variation. Considering only spatial variation, for example, one concept (e.g., "natural background") may represent statewide conditions, whereas another concept (e.g., "area background") may represent a more limited spatial scope relevant to a particular site being evaluated. This difference may be more important for some analytes than others, or under some circumstances than others. For example, differences in regional mineralogy may require a more localized estimate of background conditions for metals. Also differences in historical activities may require a more localized estimate of background conditions for a specific set of analytes. Analogous to spatial differences, there may be conditions under which temporal changes in background conditions should be considered. The issue paper should make these (and possibly other) issues more explicit.

The overview should note that there is currently no clear consensus on how to develop background sediment levels or how to use them in site cleanup decisions.

Specific Comments
The first paragraph under "Options" should be moved to the Overview; it does not present options related to any of the issues defined previously.

Option 3, Part 1 (Which locations are appropriate…?). When considering which locations are appropriate for background sampling, Ecology should include one option involving

the development of a list of criteria that will be evaluated for each site to be considered a background site, rather than a list of sites or specific locations. This approach is more practical because the condition of sites will change over time, and is more fair since Ecology's approach to selecting sites would be more transparent. The specifics of the criteria will vary depending on whether the potential background location is a river, lake, estuary, or Puget Sound, so criteria for each type of background site should be identified. In addition, such criteria should be provided within the issue paper for comment.

Option 3, Part 2 (How many samples will be needed…?) The answer to this question will depend on the statistical method to be used for comparison; therefore, this part should be presented last.

The first two bullets on the top of page 5 do not represent options for determining the number of samples needed, unless Ecology anticipates establishing a standard for a minimum number of detected results found. These can be listed as technical considerations, but do not represent options under the heading given at the bottom of page 4.

Option 3, Part 3. While the questions presented are appropriate, they do not represent a range of statistical methods for use in comparing background and site concentrations. The second, third and fourth bullets under this Part represent parts of possible options; the other bullets are considerations that can be listed after optional statistical methods are appropriately spelled out.

The first bullet in this section ("What level of uncertainty is acceptable?") is ambiguous. The text should make clear whether it refers to uncertainty in the characterization of the background data set, or uncertainty in the results of comparison of site samples to the background data set. If the former, the question must specify what characteristic of the distribution is referred to—e.g., the mean or 95th percentile. If the latter, uncertainty should be described in terms of Type 1 and Type 2 errors for either (or both) point-by-point comparisons of site data to background, or overall comparisons of site data to background.

When text describing options is revised, each option should provide a recognizable scenario that could be applied in the decision-making process at a contaminated site. For example:

- "Option 1: Background concentration should be represented by a single value representative of the upper end of the range of the concentrations in samples collected from appropriate reference areas. This upper end should be an upper tolerance limit on the 95 percent upper confidence limit on the mean or the maximum concentration. This value should be directly compared to individual points from the site data set.
- Option 2: Background concentration should be represented by a single value representative of the upper end of the range of variation of the mean for samples collected from appropriate reference areas. This value should be the upper 95

percent confidence limit on the mean, and this value should be directly compared to the mean concentration from the site data set.

- Option 3: Background concentrations will be represented by the full range of concentrations from appropriate background concentrations. Comparisons to site values will be performed as a comparison of means using an appropriate statistical test. Data will evaluated for normality and homogeneity of variance before a statistical test is selected. The probability of Type 1 error will not exceed 5 percent, and the probability of Type 2 error will not exceed 20 percent."

Options presented using this level of specificity will facilitate more directed and relevant public comment.

Additional options that should be presented include:

- The SMS will publish background values for comparisons (using the selected statistical method) with site concentrations.
- The SMS will allow managers and investigators at each site to collect a site-specific background data set. This alternative should be available for sites in regions of the state that have unique qualities demonstrably different from areas represented by any statewide data base used to define background.
- Calculation of the exposure point concentration (EPC) or equivalent metric for sediment exposure scenarios for comparison to the site value.

August 31, 2009
Dreas Nielsen
Integral Consulting Inc. on behalf of the City of Seattle
411 1st Avenue. South, Suite 550
Seattle, WA 98104

Title of Issue Paper: *Other toxic, radioactive, biological, and deleterious substances*

General Comments

1. The scope and meaning of the word "other" (in the phrase "other…substances") should be more clearly defined. Specifically, is it intended to address every substance for which there is not a numerical criterion in the SMS?
2. The scope of the SMS phrase "other toxic, radioactive, biological, and deleterious substances" seems to be broader than that of the MTCA phrase "hazardous substances." Ecology should clarify whether their goal is to have a unified definition that has a relatively broad scope or a relatively narrow scope.
3. The word "hazardous," as used in MTCA, is somewhat ambiguous and potentially subject to different interpretations. Ecology should clarify the meaning of the word "hazardous." The first of the options listed seems to equate hazard with failure of a toxicity test—does Ecology intend that toxicity tests might be the ultimate measure of hazard?
4. Whatever words may eventually be used for unified definition of 'other hazardous substances,' it is likely that some ambiguity will remain. Two approaches to reducing that uncertainty are 1) develop a list of specific substances that are considered to hazardous, but lacking numerical criteria; and 2) develop a rule or method by which 'other hazardous substances' at a site can be identified. Ecology should clarify their intent to use these, or other, approaches to reduce uncertainty.

Specific Comments

1. In the "Problem Statement" section, the second bullet refers to chemicals that "may not be analyzed or detected in the laboratory", and the third bullet refers to "unidentified chemical(s)". The difference (if any) between these two should be clarified, or the duplication eliminated.
2. The third bullet in the "Problem Statement" section refers to synergistic effects from multiple chemicals. This effect, however, would not ordinarily be considered to be a substance. The definition in http://www.ecy.wa.gov/programs/tcp/regs/2009MTCA/issues/smsIssuePapersGlossaryJune2009.pdf uses the word "contaminants" to define "other…substances," which also does not encompass effects. If Ecology's intent is to consider effects to be substances, an explicit definition of the word "substance" should be provided that clearly defines its scope of application.
3. The text of the last bullet in the "Problem Statement" section is not logically or grammatically consistent with the preceding bullets.

From:	Menard, Mark
Date:	Monday, August 31, 2009 4:56:58 PM
Posted At:	Inbox
Conversation:	Comments on the MTCA Issue Summary Paper
Subject:	Comments on the MTCA Issue Summary Paper
Attachments:	MTCA Issue Summary Comments.pdf

Ms. Hankins:

Please see the attached letter regarding my comments on the MTCA Issue Summary Paper. A hard copy original will follow via US Mail.

Feel free to contact me with any questions.

Thank you.

Mark Menard, L.H.G., C.H.M.M.
Environmental Compliance Manager
Sound Transit
Environmental Affairs Division
Department of Planning, Environment, and Project Development
401 South Jackson Street
Seattle, Washington 98104-2826
206-398-5227
206-718-2407 (cell)
206-398-5222 (fax)

Mark.Menard@soundtransit.org

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PNWC AHMM 800 Fifth Avenue, #261, Seattle, WA 98104

VIA EMAIL:HARD COPY TO FOLLOW

August 31, 2009

Ms. Martha Hankins
Washington State Department of Ecology
P.O. Box 47600
Lacey, WA 98504

Subject: Comments on the MTCA Issue Summary Paper on Remedy Selection Cost and Time Associated with Professional Certification.

Dear Ms. Hankins,

The Pacific Northwest Chapter of the Alliance of Hazardous Materials Professionals (AHMP) respectfully requests that time and cost associated with professional certification requirements be addressed in the Model Toxic Cleanup Act (MCTA) Issue Summary Paper on Remedy Selection. We believe our request, as briefly explained below, fits the category of "modest policy clarifications." We specifically ask that the following be added to Table 2 of the Issue Summary Paper on Remedy Selection:

Current Provision	Under Consideration	Comment
Professional Certification Cost and Time. Other states have successfully reduced time and costs by approving environmental professionals with the Certified Hazardous Materials Manager (CHMM) credential for remedy selection and document submittals.	Should Section 840 be amended to include competency criteria for additional professional credentials such as Certified Hazardous Materials Managers (CHMM) that demonstrate appropriate knowledge and expertise regarding remedy selection and document submittals?	Adoption of this amendment should streamline remedy selection and reduce the time and cost associated with preparation of reports, plans, and specifications submitted under WAC 173-340. Such a measure would provide more alternatives for the regulated community when selecting consultant services.

Martha Hankins
Department of Ecology
8/31/2009

Environmental professionals with the CHMM credential are trained with knowledge and experience of how to manage hazardous material impacts to the environment. Required knowledge for the exam-based CHMM credential includes regulations, industry standards, chemistry and physics, and management principles relevant to the remediation of contaminated sites.

Time and cost associated with professional certification requirements have been reduced in other states because environmental professionals with the CHMM credential are not required to obtain additional document approval from other professionals such as those whose credentials are currently specified in the MTCA regulations. In fact other states such as Missouri already recognize the CHMM credential equal to that of Professional Engineers and Registered Geologists:

http://gachmm.pluggedintech.com/CHMMauthorities.htm.

Members of our chapter, including some of your associates at the Department of Ecology, would be pleased to meet with you in order to provide additional information about the AHMP and the CHMM credential. Should you need more immediate data, may I refer you to our website at:

https://www.netforumachmm.org/eweb/StartPage.aspx?site=061128ACHM

We request that the Department of Ecology similarly allow environmental professionals with the CHMM credential to assume responsibility in remedy selection and document submittals associated with the MTCA regulations. On behalf of the Pacific Northwest Chapter of the AHMP, I thank you for your consideration.

Sincerely,

Mark Menard, L.H.G., C.H.M.M.
President
PNW Chapter, AHMP

From:	Lafata, Mark A (Redmond)
Date:	Monday, August 31, 2009 5:37:57 PM
Posted At:	TCP Rule Updates
Conversation:	Comment to Ecology regarding MTCA regulations
Subject:	Comment to Ecology regarding MTCA regulations
Attachments:	0833_001.pdf

Ms. Hankins,
please see the attached letter referencing my request to the Department of Ecology to allow environmental professionals with the CHMM credential to assume responsibility in remedy selection and document submittals associated with the MTCA regulations.

Thank you for your consideration.

Mark LaFata, CHMM
Corresponding Secretary, PNWC-AHMM
mark.lafata@gmail.com
****
Senior Environmental Analyst
Aerojet - General Corp.
Redmond, WA
425-936-5681 office
425-882-5754 fax
mlafata@rocket.com

August 31, 2009

Ms. Martha Hankins
Washington State Department of Ecology
P.O. Box 47600
Lacey, WA 98504

Subject: Comments regarding MTCA Issue Summary Paper on Remedy Selection Cost and Time Associated with Professional Certification.

Dear Ms. Hankins,

The Pacific Northwest Chapter and the Eastern Washington Chapter of the Alliance of Hazardous Materials Professionals (AHMP) wish to request that time and cost associated with professional certification requirements be addressed in the Model Toxic Cleanup Act (MCTA) Issue Summary Paper on Remedy Selection. We believe our request, as briefly explained below, fits the category of "modest policy clarifications." We request that the following be added to Table 2 of the Issue Summary Paper on Remedy Selection:

Current Provision	Under Consideration	Comment
Professional Certification Cost and Time. Other states have successfully reduced time and costs by environmental professionals with the Certified Hazardous Materials Manager (CHMM) credential for remedy selection and document submittals.	Should Section 840 be amended to include competency criteria for additional professional credentials such as Certified Hazardous Materials Managers (CHMM) that demonstrate appropriate knowledge and expertise regarding remedy selection and document submittals?	Should speed up remedy selection and reduce unnecessary time and cost associated with reports, plans, and specifications submitted under WAC 173-340.

Environmental professionals with the CHMM credential are trained with knowledge of how to manage hazardous material impact to the environment. Required knowledge for the exam-based CHMM credential includes regulations, industry standards, chemistry and physics, and management principles relevant to hazardous materials associated with toxic site cleanup.

Time and cost associated with professional certification requirements have been reduced in other states because environmental professionals with the CHMM credential do not need to unnecessarily obtain additional document approval from other professionals whose credential is currently specified in the MTCA regulations. In fact other states such as Missouri already recognize the CHMM credential on a par with that of Professional Engineer and Registered Geologist, http://gachmm.pluggedintech.com/CHMMauthorities.htm.

We request that the Department of Ecology similarly allow environmental professionals with the CHMM credential to assume responsibility in remedy selection and document submittals associated with the MTCA regulations. Thank you for your consideration.

Sincerely,

Mark LaFata, CHMM
Senior Environmental Analyst
Aerojet - General Corp.
Redmond, WA
mark.lafata@rocket.com

From:	Fitzpatrick, Anne
Date:	Monday, August 31, 2009 5:23:39 PM
Posted At:	Inbox
Conversation:	AECOM comments MTCA-SMS Issue Papers (Email 1 of 2)
Subject:	AECOM comments MTCA-SMS Issue Papers (Email 1 of 2)
Attachments:	AECOM_COMMENTS_Vapor_Intrusion_submitted_agf8-31-09.doc AECOM_COMMENTS_MTCA-SMS,HH,Background_submitted_agf8-31-09.doc AECOM_COMMENTS_Remedy_Selection_submitted_gh8-31-09.doc

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To Whom It May Concern,
Thank you for the opportunity to comment on the MTCA-SMS issue papers. Attached are comments from AECOM on several papers. Please let me know if you need any additional information.

Regards,
Anne

Anne G. Fitzpatrick, R.G.
AECOM Environment
D: 206-403-4229 C: 206-963-8199
anne.fitzpatrick@aecom.com

AECOM
710 Second Avenue, Suite 1000
Seattle, WA 98104
T 206.624.9349 x2554-229 F 206.623.3793
www.aecom.com

AECOM

DATE: 8/31/2009

NAME: Grant Hainsworth – Environmental Engineer, PE

ORGANIZATION: AECOM
ADDRESS: 710 2nd Avenue, Seattle , WA 98104
PHONE: 206-624-9349
E-MAIL: grant.hainsworth@aecom.com

ISSUE PAPER: REMEDY SELECTION

COMMENTS & SUPPORTING INFORMATION

Thank you for providing the public with the opportunity to comment on these important topics. These comments are provided on behalf of AECOM, an environmental and engineering firm with 6 offices and over 200 employees in Washington and 47,000 employees across the globe. AECOM has been conducting feasibility studies and cleanups in Washington State for over 20 years. This is an important issue for many of our clients. We would appreciate the opportunity to participate in future phases of this rulemaking.

We offer three primary comments:

1. ***We support the modification of the MTCA remedy selection process to incorporate some of the positive attributes of the SMS process, such as consideration of net environmental effects and the incorporation of analysis of a range of cleanup levels in the alternatives analysis. Sustainability considerations could be incorporated into the net environmental effects category.***

2. ***We support clarification of the remedy selection process and, in particular, the disproportionate cost analysis. Guidance on this topic would be very useful. Of particular concern is the apparent confusion between "permanence" and "permanent to the maximum extent practicable". A permanent remedy achieves cleanup standards without further action but it is routinely expected that extensive contaminant mass removal (or "permanence") is required.***

3. ***Remedy selection decisions have more direct cost impact than any other decisions yet the decision process is inherently imprecise and the process is often contentious. Rather than attempting to improve precision, we believe a process could be implemented to address these issues. A less formal version of the Agreed Order dispute resolution process could be written into the rule to***

allow mediation or peer review. As an example, a peer review committee could be established that may include 3rd parties, to review remedy decisions as requested by either the liable party or Ecology staff. Each side could argue their case for the committee and the committee could make a remedy decision or other recommendations. The North American Free Trade Agreement has some procedures that may be worth considering.

Some specific, more technical comments to consider when revising the MTCA rules:

- The remedy selection and the disproportionate cost analysis are "cost-effectiveness" analyses, not to be confused with a "cost-benefit" analysis. The purpose of the analysis is a relative comparison of remedial alternatives. Any inclusion of absolute requirements that are site scale or complexity dependent is unnecessary. As such, we do not support the inclusion of presumed restoration timeframes or removal or treatment percentages.
- We do not believe that mass is an appropriate measure of human health or environmental risk. We do not believe that feasibility studies should be required to map mass or that mass removal or treatment should be considered in the PMEP outcome.
- Discount rates for costs analyses should reflect the timeframe that is being considered and be based on typical GDP for that timeframe. In addition, costs are used for relative comparison and any reasonable discount rate should be adequate for that comparison. We do not believe rates should be specified in MTCA.
- In many ways, reasonable restoration timeframe is subsumed within the disproportionate costs analysis since a remedy that is "permanent to the maximum extent practicable" will achieve cleanup standards with no further action. We do not believe any changes are required to the restoration timeframe provision.
- We agree that the "quantitative scientific analysis" provision for institutional controls should be eliminated.
- We agree that greenhouse gas emissions should be considered in remedy selection as indicated in our submittal specific to climate change and sustainability.
- We agree that demonstrating a containment remedy is protective should be included in MTCA but we do not believe the process needs to be prescriptive. As indicated in your issue paper, a wide range of remedies and sites would make prescribing this process difficult and typical default values are well understood.

AECOM

DATE:: 8/31/2009

NAME:
Jamie Stevens – Environmental Engineer
Linda Baker – Sr. Project Manager
Laura Trozzolo – Human Health Risk Assessor
ORGANIZATION: AECOM
ADDRESS: 710 Second Avenue, Suite 1000, Seattle WA 98104
PHONE: 206-624-9349
E-MAIL: jamie.stevens@aecom.com

ISSUE PAPER: **Vapor Intrusion**

COMMENTS

Thank you for providing the public with the opportunity to comment on these important topics. These comments are provided on behalf of AECOM, an environmental and engineering firm with 6 offices and over 200 employees in Washington and 47,000 employees across the globe. AECOM has been conducting vapor intrusion studies and assessments for 15 years in Washington and many other states, including California, Colorado, New York, Massachusetts, Michigan, Oregon, and Wyoming. It is an important issue for many of our clients.

We offer three primary comments:

1. ***We support separate development of Vapor Intrusion guidance for upland site investigations. We recommend using USEPA's tiered approach for evaluating indoor air risks. Other states have issued separate VI guidance and use a framework similar to USEPA 2002 VI guidance.***

2. ***We encourage Ecology to create a tiered approach to their vapor intrusion guidance. The first tier should evaluate whether there is the potential for a vapor intrusion pathway and clearly identify when the vapor intrusion pathway should be evaluated in the RI/FS. Tier 2 should compare chemical concentration data for subsurface media, including groundwater, soil gas/subslab to applicable screening levels protective of residential and industrial exposure scenarios. Note, USEPA does not recommend the use of soil data to characterize vapor intrusion concerns; however, some states (e.g., Missouri) include soil screening levels protective of indoor air. If subsurface data exceed applicable screening levels, then a Tier 3 evaluation would be triggered, which may include additional data collection and investigation, and use of predictive vapor intrusion modeling. Unacceptable indoor air risks determined by a Tier 3 evaluation may result in mitigation or remediation (Tier 4).***

3. ***We encourage Ecology to incorporate ambient and indoor air contributions from everyday sources when evaluating indoor air concentrations, risks and mitigation needs above background levels. In addition, collection of biodegradation markers, such as oxygen, carbon dioxide, and methane concentrations at multiple depths in the unsaturated zone will determine whether biodegradation of subsurface sources may be occurring.***

Some specific, more technical comments to consider when revising the MTCA rulings:

- Ecology has indicated that Method B values may apply for both residential and commercial land uses. These have very different exposure behaviors and default exposure assumptions.
- Method B and Method C do not permit the exposure duration to be modified, and assume a worker is continuously working 24 hours a day, 7 days a week, for 30 years. Actual working hours at commercial and industrial facilities are much less and therefore, exposure duration should be revisited. Note, several USEPA guidance documents present default exposure assumptions for both residential and industrial exposure scenarios, including USEPA's 2002 *Supplemental Guidance for Developing Soil Screening Levels at Superfund Sites* and USEPA's 2004 *Risk Assessment Guidance for Superfund (RAGS) Volume I: Human Health Evaluation Manual Part E, Supplemental Guidance for Dermal Risk Assessment.*
- Sub slab screening value or ambient air standards (federal ambient air standards would apply as an ARAR) should consider ambient and indoor contributions from everyday sources. This is important because many of the carcinogenic cleanup levels are very low, and many building and common household products (e.g., paint, furniture, carpet, drycleaned clothes, stored gasoline in garage, glass cleaners) or behaviors (e.g., smoking or cooking at high heats) act as a source of volatile organic compounds which could produce indoor air concentrations higher than risk-based standards. A common example of this is acrolein and tricolorethylene (TCE).
- Ecology guidance should consider sub-slab attenuation. There is precedent for developing sub-slab attenuation factors in literature and guidance published by other states.
- EPA does not recommend using soil data to characterize vapor intrusion potential. Therefore, we recommend that Ecology <u>not</u> develop soil screening or cleanup levels protective of indoor air. For characterization and screening, soil vapor data should be collected instead.
- Guidance should consider how permitting, and future building use considerations should be factored into a remedy. Guidance should account for current building practices, such as positive pressure buildings, vapor barriers, and increased air exchange rates associated with HVAC systems.

- Although potential vapor intrusion concerns may result from subsurface sources of chlorinated solvents or petroleum hydrocarbons, ongoing research by USEPA and other parties regarding petroleum hydrocarbons indicate that biodegradation plays a significant role in reducing subsurface concentrations of petroleum hydrocarbons, and, therefore, should be considered. Where petroleum hydrocarbons are present in the subsurface, fixed gases (including oxygen, carbon dioxide, and methane) should be collected to identify whether favorable conditions exist for biodegradation.

SUPPORTING INFORMATION

There are multiple sources of available information on this topic that would help Ecology evaluate how these considerations can be factored into vapor intrusion guidance. These include:

USEPA VI Website Links
USEPA Options for Developing and Evaluating Mitigation Strategies for Indoor Air Impacts (1993)
Past VI Conferences and Workshops
USEPA Vapor Intrusion Guidance (11/29/02)
USEPA Version: Johnson & Ettinger Model
USEPA Johnson and Ettinger Spreadsheet-Calculate Media Concentrations from an Indoor Air Concentration
USEPA Johnson and Ettinger Spreadsheet-Calculate Indoor Air Concentrations from Media Sample Concentrations
USEPA Modeled Ambient Air Concentrations
USEPA Hazardous Air Pollutants Fact Sheets
USEPA TO-15 Sampling and Analytical Method
USEPA TO-17 Sampling and Analytical Method
Supplement to Method TO-15 — Reduction of Method Detection Limits
USEPA Subslab Testing Using TO-17
USEPA ORD Version of the Johnson and Ettinger Model
Introduction to OSWER Vapor Intrusion Draft Guidance
Uncertainty of J-E Model Calculations
USEPA Brownfields Technology Primer: Vapor Intrusion Considerations for Redevelopment
Review of VI Research
Assessing Potential Indoor Air Impacts for Superfund Sites

In addition to the USEPA links above, there are numerous state guidance documents addressing vapor intrusion concerns. We would be happy to forward these additional links to you.
In short, there are many resources available to Ecology to incorporate vapor intrusion into state guidance. There are many options to consider, and AECOM would be pleased to support this effort.

AECOM

DATE: 8/31/2009

NAME: Anne Fitzpatrick – Sr Sediment Scientist
Grant Hainsworth – Environmental Engineer, PE
Linda Baker – Sr. Project Manager
Merv Coover – Sr. Environmental Engineer, PE
John Ryan – Vice President
Dan Baker – Sr. Project Manager
Jason Palmer – Project Manager
Chad Roper – Environmental Chemist, PhD
Halah Voges – Sr. Project Manager, PE

ORGANIZATION: AECOM
ADDRESS: 710 Second Avenue, Suite 1000, Seattle WA 98104
PHONE: 206-624-9349
E-MAIL: anne.fitzpatrick@aecom.com

ISSUE PAPERS: **1) SMS-MTCA Integration**
2) Background Concentrations in Setting Sediment Cleanup Standards
3) Human Health Risk Considerations in Sediment

COMMENTS

Thank you for providing the public with the opportunity to comment on these important topics. These comments are provided on behalf of AECOM, an environmental and engineering firm with 6 offices and over 200 employees in Washington and 47,000 employees across the globe. AECOM has been evaluating these issues within the MTCA and SMA frameworks on behalf of their clients for over 20 years in Washington State.

There is much overlap between the key regulatory issues being discussed for human health, and SMS-MTCA integration. We believe that the Issue Papers hits the points and asks the questions we and our clients are most interested in. However, we offer a few big picture comments on these issues:

1. ***MTCA-SMS Integration: We offer another option that embraces the differences between the two programs regarding cleanup standards, restoration time frames, background, and remedy selection. We believe that MTCA is not a reasonable template for managing contaminated sediment sites; it would be detrimental to apply MTCA to SMS. MTCA is best applied to small and/or discrete sites (soil and groundwater), while SMS is appropriate for larger and/or diffuse sites (sediment and air). Sediment (and air) sites pose unique challenges that MTCA is not currently devised to address. Sediments are treated differently in regulation for a***

number of reasons: chemical, biological, historical, political and economic. Harmonization of regulatory criteria must be reflective of these differences to be effective. Sediment sites need more flexibility. SMS should (continue to) incorporate flexibility (e.g., area background, bioavailability, restoration timeframe), a range of cleanup standards, costs, and consideration of practical realities of sediment sites.

2. ***Background: We encourage both MTCA and SMS to acknowledge that natural background is not achievable in urban sediments, and not use this level as a threshold cleanup requirement for final remedy. Anthropogenic/area background is a more realistic and achievable cleanup level and there is precedent in EPA (i.e., Vapor Intrusion guidance for considering contributions from on-going, low level ambient sources).***

Additional specific and technical comments to consider:

- Restoration Time Frame: Another option to consider in the MTCA-SMS integration is restoration time frame. MTCA restoration timeframe and permanent solution frameworks do not translate well to SMS. Restoration timeframes will vary widely between sites; no one number will be universally applicable. Longer time frames (more than 10 years) may be required to reach cleanup goals for the protection of human health (i.e., fish consumption). The relationship between sediment and tissues concentrations is complex and not well understood; and source control efforts/surface water concentrations may also play a role.
- MTCA-SMS Integration: We agree with the option suggesting a decision framework using a range of concentrations for the protection of human health. Ecology could embrace an acceptable risk range of 10-6 to 10-4, similar to EPA guidance. Harmonization represents an opportunity to incorporate new science.
- Human Health: The application of MTCA cleanup levels to sediments is made challenging by the assessment of exposure pathways. The key difference in many sediment sites for all the exposure pathways is the fact that few waterways are completely private and most are located in state or federal waters with many historical and ongoing source inputs. At an upland site, a site owner can put up a fence or add pavement and largely prevent human contact with site soil. Direct contact with sediment and ingestion of biota are harder to manage via deed restrictions, swimming bans, site access, and/or consumption advisories. Therefore, a larger acceptable risk range, concepts of bioavailability, and background contributions should be included in state guidance.
- Human Health: Many smaller sediment sites do not have adequate funding to conduct site-specific risk assessments. These sites would benefit from a look-up table screening table (similar to MTCA) for numeric screening levels that could be considered. However, these values would need to be above background concentrations.

- Remedy Selection: We support the option that retains the selection criteria of the SMS and revises the MTCA rule to incorporate the requirements that are specific to sediment cleanup actions, or alternately, defer to the SMS for sediment sites.
- Remedy Selection: Cost must be considered in remedy selection if compliance is expected. Cost should be considered in setting cleanup standards unless Ecology plans on oversight in perpetuity.

Discussions of background concentrations of a particular chemical generally fall into two categories: 1) where do I look to assess a background condition? and 2) how do I calculate to assess what is significantly different from background? We offer additional comments on these topics.

- Background: Any guidance developed for background should acknowledge the uncertainty inherent to background determinations and any revisions should recognize that remedies for complex sediment sites may approach pre-estimated background levels but not fully meet or decline below those levels based on rigorous statistical comparison. Similar to many groundwater sites, monitoring may show achievement of steady-state conditions above background goals. Under these circumstances, is a remedy to be considered a failure, even if the concentration difference between the pre-estimated (and Consent Decree codified) background and the steady state level achieved in practice represents a very small incremental risk?
- Background: The ability to differentiate between natural and area background for each site, and having the regulatory ability/guidance to evaluate which one is achievable for a final remedy makes the most sense moving forward. A framework developed for making this decision should consider urban vs non-urban environments, and whether upstream, adjacent, or area-wide sources have been or can be controlled.
- Background: MTCA's primary definition of this concept discusses "localized human activity" and "non-anthropogenic sources" rather than the actions of a specific actor or polluter. We appreciate the goals of the Puget Sound Initiative – restoring our waters and environment - but the "polluter pays principle" is difficult enough to enforce without implying that a polluter is responsible for restoring to a natural state. No one should be responsible for more pollution than they can be reasonably have generated and put into the environment, especially for urban sediments. The "area background" or "equilibrium" definition, which is commonly used in many states, is a more appropriate approach.
- Background: Guidance could have look-up numbers/numeric tables for those sites not wishing to undertake a site-specific evaluation or extensive background sampling. Any look up values should acknowledge different environments – natural, light urban, heavy urban. And finally, sites should be allowed to collect additional background samples to improve data sets and provide more recent information

- Terminology: We recommend synchronizing these when and where clarity will be added, but the regulated community can manage the different terms as long as the intent is understood. Ecology has bigger issues to ponder.

SUPPORTING INFORMATION

Other state-regulated programs, such as the Massachusetts Contingency Plan, recognize that the urban river systems in the Commonwealth of Massachusetts are not pristine, and that establishing anthropogenic background or reference conditions ("local conditions") may be a critical part of urban river assessment efforts. EPA guidance recognizes these limitations and states "It is especially important to consider both background levels of contamination and what has been achieved at similar sites elsewhere so that achievable cleanup levels are developed." Supporting information is listed below. These documents discuss the inherent limitations is achieving risk-based goals, describe how chemical concentrations (for a few chemicals such as PAHs) are increasing with increasing urbanization, and that ongoing monitoring at sediment remediation projects is showing steady state conditions with time.

AECOM 2009. *Draft Feasibility Study, Lower Duwamish Waterway, Seattle, Washington.* Prepared for Port of Seattle, City of Seattle, King County, and the Boeing Company. Submitted to EPA and the Washington State Department of Ecology. Prepared by AECOM Environment, Seattle, Washington. April 24, 2009.

Battelle 2009. Panel: Strategies for Sustainable Sediment Management. Fifth International Conference on Remediation of Contaminated Sediments, February 2–5, 2009. Jacksonville, FL.

NRC 2007. *Sediment Dredging at Superfund Megasites, Assessing the Effectiveness.* National Research Council, of the National Academy of Sciences. ISBN 13: 978-0-309-10977-2. The National Academies Press, Washington D.C. pp. 294.

Van Metre, P.C., B.J. Mahler, and E. T. Furlong, 2000. Urban Sprawl leaves its PAH signature. *Env. Sci. Tech* (34): 4064 – 4070.

Van Metre, P.C. and B.J. Mahler, 2005. Trends in hydrophobic organic contaminants in urban and reference lake sediments across the United States, 1970–2001. *Env. Sci. Tech* (39): 5567 – 5574.

Thomann, R.V. and J.P. Connelly, 1984. Model of PCB in the Lake Michigan lake trout food chain. *Environ. Sci. Tech*. 18: 65-71.

Wenning, R.J., D.B. Mathur, D.J. Paustenbach, M.J. Stephenson, S. Folwarkow, and W.J. Luksemburg, 1999. Polychlorinated Dibenzo-p-dioxins and dibenzofurans in stormwater outfalls adjacent to urban areas and petroleum refineries in San Francisco Bay, California. *Arch. Environ. Contam. Toxicol.* (37): 290–301. 1999.

From:	Fitzpatrick, Anne
Date:	Monday, August 31, 2009 5:47:13 PM
Posted At:	TCP Rule Updates
Conversation:	AECOM comments MTCA-SMS Issue Papers (Email 2 of 2)
Subject:	RE: AECOM comments MTCA-SMS Issue Papers (Email 2 of 2)
Attachments:	AECOM_COMMENTS_Freshwater_Sediment_Standards_submitted_agf8-31-09.doc AECOM_Memo_Response_Human_HealthBioaccum_submitted_agf8-31-09.doc AECOM_COMMENTS_ABC_Framework_submitted_gh8-31-09.doc

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To Whom It May Concern,
Thank you for the opportunity to comment on the MTCA-SMS issue papers. Attached are comments from AECOM on several papers. Please let me know if you need any additional information. You should have a total of 7 separate response documents from AECOM staff.

Regards,
Anne

Anne G. Fitzpatrick, R.G.
AECOM Environment
D: 206-403-4229 C: 206-963-8199
anne.fitzpatrick@aecom.com

AECOM
710 Second Avenue, Suite 1000
Seattle, WA 98104
T 206.624.9349 x2554-229 F 206.623.3793
www.aecom.com

AECOM

DATE: 8/31/2009

NAME : Grant Hainsworth – Sr. Project Manager
ORGANIZATION: AECOM
ADDRESS: 710 Second Avenue, Suite 1000, Seattle WA 98104
PHONE: 206-624-9349
E-MAIL: grant.hainsworth@aecom.com

ISSUE PAPER: ABC Framework for Cleanup Levels

COMMENTS

Thank you for providing the public with the opportunity to comment on these important topics. These comments are provided on behalf of AECOM, an environmental and engineering firm with 6 offices and over 200 employees in Washington and 47,000 employees across the globe. AECOM has been conducting investigations and cleanups in Washington State for over 20 years. This is an important issue for many of our clients. We would appreciate the opportunity to participate in future phases of this rulemaking.

We offer four primary comments:

1. ***We do not have any significant concern with the overall ABC framework for setting cleanup standards under MTCA is warranted. The flexibility provided by Modified Methods B and C is useful under specific circumstances and already exists. We recommend leaving this part of the MTCA rule as-is.***

2. ***We encourage the use of the exposure pathway format. We do, however, caution on the over-prescription of cleanup level calculation equations and parameters. Many values presented as defaults in MTCA may lead to inappropriate cleanup decisions. Specific examples include: 1) the Kd for arsenic (Table 747-3) which represents Arsenic III even though the predominant speciation is Arsenic V and there are many geochemical factors that influence the mobility or arsenic and other chemicals; and 2) the Koc for Aroclors 1016 and 1260 (Table 747-1) which are based on values provided in a draft EPA document but were removed prior to finalization and that are not entirely consistent with other available literature. We would recommend publishing equations and parameters in supporting guidance rather than the MTCA rule or making the burden of proof to adjust these parameters more achievable.***

3. ***We encourage expansion of the exposure pathway format under Method B to allow selection of a site-specific reasonable maximum exposure (RME) and associated***

risk parameters to allow the development of cleanup standards that are more relevant to each site.

4. ***Background has been discussed significantly with respect to sediment and indoor air. As cleanup levels continue to decrease and new contaminants of concern are discovered, the background issue has also become relevant to soil. With chemicals such as dioxins and cPAHs, it is highly likely that anthropogenic background will exceed Method B risk criteria at numerous sites. We believe that anthropogenic background should be considered, where appropriate, in setting cleanup levels and that all media should be included, not just sediment and indoor air.***

Some specific, more technical comments to consider when revising the MTCA rules:

- The 4-phase model for calculation of TPH cleanup levels is very sensitive to laboratory Reporting Limits and Method Detection Limits for the lower weight, more toxic fractions. Guidance or clarity regarding the treatment of non-detect data would be useful. This could be as simple as including a reference to the appropriate compliance monitoring section – for example, WAC173-340-720(4)(b)(C) could include a reference to WAC173-340-720(9)(f).
- In practice, many consultants and Ecology staff believe a single cleanup level and point of compliance is necessary for each media at each site. Additional clarity that a cleanup level is relevant to a "specified exposure condition" as indicated in WAC 173-340-700(2) could be very useful. For example, different cleanup levels can apply to the same media in different parts of a site based on exposure conditions.
- The procedure for developing Method B cleanup levels using sufficiently protective ARARs rather than defaulting to Method B equation values is not well understood by consultants and Ecology staff. Additional clarity or guidance on this issue may be useful.
- The procedure for evaluating multiple hazardous substances for total site risk prior to adjusting cleanup levels for PQL and natural background, while indicated in a Technical Memorandum on the Ecology website, is not well understood by consultants and Ecology staff and could be clarified.
- WAC 173-340-720(8)(e) provides for the ability to incorporate natural attenuation when using upland groundwater monitoring wells to monitor for surface water compliance. In tidal environments, significant attenuation occurs immediately upland of the shoreline. The use of this provision could be clarified for consultants and staff to ensure more consistent application.
- The science of predicting soil concentrations protective of groundwater (WAC 173-340-747) is very complex and that complexity is not reflected in either the three-phase or four-phase models. The appropriate use of leaching tests, alternative fate and transport models, and the empirical demonstration (WAC 173-340-747(3)(d),(e), and (f)) should be viewed as more acceptable than the standard model equations as they provide site-specific insight that will lead to better cleanup decisions. We believe the rule should be modified to reflect a preference for this better data.

AECOM

DATE: 8/31/2009

NAME: Anne Fitzpatrick – Sr Sediment Scientist
Grant Hainsworth – Environmental Engineer, PE
Linda Baker – Sr. Project Manager
Merv Coover – Sr. Environmental Engineer, PE
John Ryan – Vice President
Dan Baker – Sr. Project Manager
Jason Palmer – Project Manager
Chad Roper – Environmental Chemist, PhD
Halah Voges – Sr. Project Manager, PE

ORGANIZATION: AECOM
ADDRESS: 710 Second Avenue, Suite 1000, Seattle WA 98104
PHONE: 206-624-9349
E-MAIL: anne.fitzpatrick@aecom.com

ISSUE PAPER: Freshwater Sediment Standards

COMMENTS AND SUPPORTING INFORMATION

Thank you for providing the public with the opportunity to comment on this important topic. These comments are provided on behalf of AECOM, an environmental and engineering firm with 6 offices and over 200 employees in Washington and 47,000 employees across the globe. AECOM has been evaluating these issues within the MTCA and SMS frameworks on behalf of their clients for over 10 years in Washington State.

The *Freshwater Sediment Standards Issue Paper* asks important questions regarding the lack of freshwater standards that we and our clients are interested in. However, the key regulatory issues being discussed for background, human health, and SMS-MTCA integration should be considered in the development of freshwater standards. We offer the following big picture comments on these issues:

1. **Numerical freshwater standards should not be added to SMS; instead focus on biological criteria.**

   Numerical standards would not consider bioavailability, sediment conditions, and other site-specific factors that can affect sediment toxicity. Development of numeric values could open the door to EPA review/approval and make sites susceptible to 303(d) issues, that may be hard to manage and unique to Washington State. If freshwater criteria are developed into the rule, we prefer them to be biological criteria. We recognize the value of look-up tables for numerical screening levels; these should be guidance and not rules.

2. **Freshwater sediment standards should incorporate flexibility (e.g., area background, bioavailability, time, a range of cleanup standards). Selection of final cleanup standards should allow consideration of costs, cleanup limitations, and the practical realities of sediment sites.**

   Flexibility is needed on restoration time frame requirements (or the chemical standards if 10 years is not flexible). In urban settings, standards could take longer than 10 years to achieve because of ongoing source inputs, influence from adjacent sites, nutrient loading, or time for the biological community to respond after changing sediment conditions. The regulated community responds to pragmatism. A pragmatic, flexible approach can encourage actions which reduce risk. While clear and predictable cleanup standards are important to regulation, they can be a detriment to remedial actions if they don't have adequate flexibility to reflect an accurate scientific and technical understanding of the situation.

3. **We encourage SMS Freshwater Water Standards to acknowledge that natural background is not achievable in urban sediments, and not use this level as a threshold cleanup requirement for final remedy**.

   Anthropogenic/area background is a more realistic and achievable cleanup level that considers contributions from on-going, low level ambient sources. No one should be responsible for more pollution than they can be reasonably have generated and put into the environment, especially for urban sediments. The anthropogenic/"area background" or "equilibrium" definition, which is commonly used in many states, is a more appropriate approach.

4. **Standards should acknowledge bioavailability and add flexibility to explore this.**

   Bioavailability is controlled by the amount and type of organic carbon in sediments. The availability of sediment associated chemicals is limited by their desorption into pore water. New test methods are emerging to measure the availability of chemicals in sediment. In order to maintain credibility, regulations need to incorporate the best available science. Bioavailability is an example of well established science that is poorly incorporated into regulatory frameworks.

AECOM

DATE: 8/31/2009

NAME: Chad Roper, Sr Project Specialist, PhD
Betsy Ruffle, Sr. Risk Assessor
Anne Fitzpatrick, Sr Sediment Scientist
Merv Coover, Sr. Engineer, P.E.
Linda Baker, Sr. Project Manager
Dan Baker, Sr Project Manager
Jason Palmer, Project Manager
Grant Hainsworth, Sr. Manager, P.E.
Halah Voges, Sr. Project Manager, P.E.
ORGANIZATION: AECOM
ADDRESS: 710 Second Avenue, Suite 1000, Seattle WA 98104
PHONE: 206-624-9349
E-MAIL: anne.fitzpatrick@aecom.com

ISSUE PAPERS: Human Health Risks in Setting Sediment Cleanup Standards
Human Health Risk Assessment Methods and Policies
Ecological Risks from Bioaccumulative Chemicals in Sediment
Fish Consumption Rates for High Exposure Population Groups

COMMENTS

Thank you for providing the public with the opportunity to comment on these important topics. These comments are provided on behalf of AECOM, an environmental and engineering firm with 6 offices and over 200 employees in Washington and 47,000 employees across the globe. AECOM is an active part of the Interstate Technology and Research Council (ITRC) Contaminated Sediments Working Group. We believe the issue papers cover the topics pretty well. We are collectively providing a few focused comments on the human health and ecological risk papers listed above, since many of these issues are inter-related.

GENERAL COMMENTS

Sediments are treated differently in regulation for a number of reasons: chemical, biological, historical, political and economic. It is for these reasons that we believe applying MTCA to SMS would be detrimental. MTCA is best applied to small and/or discrete sites (soil and groundwater), while SMS is appropriate to larger and/or diffuse sites (sediment and air). Sediment (and air) sites pose unique challenges that MTCA is not currently devised to address.

An evaluation of what is or is not working for each regulation would be a productive first step so that things that are not “broken” are not being fixed as the agency moves forward on the various issues. SMS should (continue to) incorporate flexibility (e.g., area background, bioavailability, and restoration timeframe), a range of cleanup standards, consideration of remedial costs, and consideration of practical realities of sediment sites (e.g., exposure pathways, economic impacts, impacts to the natural environment and reasonable risk-based concentrations).

SPECIFIC COMMENTS

- ***Regulations need flexibility to acceptable risk ranges, similar to EPA 10-4 to 10-6 risk range.***

  We understand that Department of Ecology (Ecology)'s goal of incorporating the quantitative risk measures found in MTCA into SMS. However, in soils, the exposure pathways are well defined and the media to which one is exposed are directly measured. In sediments, exposure routes are more complicated, particularly food borne exposure, and thus there is a greater degree of uncertainty associated with these measurements. Additional flexibility in risk and hazard criteria needs to exist that will recognize these uncertainties and allow regulators to select remedial goals that encourage risk reduction. If remedial goals are unattainable the incentive to remediate is removed.

- ***Risk Assessments need to include reasonable Reasonable Maximum Exposures (RMEs) that have been peer-reviewed.***

  As was previously stated, human health exposure pathways for sediments are substantially different from those for soil. Exposure scenarios must be continuously evaluated for their correlation with reality. The compounding of bioaccumulation, seafood consumption, and exposure duration factors makes it almost impossible to satisfy MTCA risk criteria, and thus flexibility in this area is needed to encourage pragmatic remedial actions.

  Studies and documents used in establishing sediment exposure pathways should be subject to the same standard of review and public comment as other risk assessment information. As an example, the Suquamish tribal consumption survey/EPA working report has not been peer reviewed and reports very high, seemingly unrealistic fish and seafood consumption rates. Although EPA has classified it as a "working" document, it is being used as a guidance document (the findings are being applied at various sites, such as Duwamish, Pt. Angeles, and others) and now the values are being proposed for MTCA. The consumption rates cited in this document should be peer reviewed.

  We would also advocate the measurement of exposures as directly as possible. For example, if one is monitoring human exposure through a food pathway, one should measure the contaminant content of the food items in question in the manner they are consumed (ie. filets, whole organisms etc.). This minimizes the reliance on modeling of contaminant concentrations and the uncertainties associated with that modeling.

- ***Water and/or sediment criteria that incorporate higher (i.e., tribal) fish consumption rates should be peer-reviewed and consider several site factors; recreational consumptions rates should be preserved.***

  If Ecology decides to use a set of default tribal consumption rates, we need to make sure the criteria for assessing whether the default criteria are appropriate for the water body in question and considers:

- the characteristics of the water body including shoreline development, urbanization and industrialization, presence of other sources contributing chemical and biological stressors,
- whether the water body supports subsistence consumption of the preferred species now or would be capable in the future,
- the size of the consuming population (while Superfund purports to protect the individual, the size of the affected population should be considered, especially if it is very small and potentially getting smaller, although there are some who argue that tribes are eating less fish than they would otherwise if not contaminated - suppression and resource shifting issues),
- how much self-caught vs. store-bought fish is consumed (some of the studies including the Asian Pacific Islanders survey included all fish consumed, not just self-caught, so it is important to understand that when considering the rates in the table contained in the issue paper).

Any rule revisions related to consumption rates should still include ones based on recreational consumption. In fact, it will become impossible to detect the concentrations of many compounds that will likely be derived using tribal consumption rates.

- ***SMS should acknowledge bioavailability, add flexibility to explore this.***

Just as the availability of sediment associated chemicals is limited by their desorption into pore water, the dermal absorption of sediment associated contaminants is also bioavailability limited. Stroo et al. (2005, 2005a) have demonstrated that bioavailability can reduce exposure to PAHs by 27 to 142 fold compared to default assumptions.

Standardized analytical techniques are available such as EPA method 8272 that measure the pore water concentration of contaminants from sediment samples. Pore water concentrations have repeatedly been shown to be predictive of the toxicity of sediment associated contamination to benthic organisms and are routinely 1 to 2 orders of magnitude lower than those observed in sediment. Regulation based on pore water concentration should be allowable for ecological toxicity, and empirical measurements of exposure should be given precedence over models that do not recognize bioavailability limitations.

In order to maintain credibility, regulations need to incorporate the best available science. Bioavailability is an example of well established science that is poorly incorporated into regulatory frameworks.

- ***Need flexible restoration time frames, especially for human health fish/tissue consumption pathways. They may not be achievable in 10 years or less.***

Chemical and biological changes in sediments occur over extended timeframes because, among other reasons, sediments are frequently anaerobic and composed of recalcitrant materials that are not easily degraded in the water column or sediment, have continued exposures from dredging events and dredge residuals, and are dependent on effective source control. Beyond this, the response of organisms living in the benthic environment to

changes in sediment may take even longer time frames. Each trophic level may take a generation or more for significant improvement once its preceding trophic level is 'clean'. Recognizing these timeframes is a key component of producing pragmatic regulation.

The regulated community responds to pragmatism. A pragmatic, flexible approach can encourage actions which reduce human health risk. While clear and predictable cleanup standards are important to regulation, they can be a detriment to remedial actions if they don't have adequate flexibility to reflect an accurate scientific and technical understanding of the situation.

SUPPORTING INFORMATION

Stroo HF, Roy TA, Liban CB, Kreitinger JP. (2005). Dermal bioavailability of benzo[a]pyrene on lampblack: implications for risk assessment. *Environ Toxicol Chem.* 24(6):1568-72.

Stroo, HF; Nakles, DV; Kreitinger, JP; Loehr, RC; Hawthorne, SB; Luthy, RG; Holman, H-Y; and LaPierre, A. (2005a). Improving Risk Assessments for Manufactured Gas Plant Soils by Measuring PAH Availability. *Integrated Environmental Assessment and Management ,* 1 (3), pp. 1–8

From:	Johan Hellman
Date:	Monday, August 31, 2009 4:48:31 PM
Posted At:	Inbox
Conversation:	Comments regarding issue papers, due 8/31/09
Subject:	Comments regarding issue papers, due 8/31/09
Attachments:	Letter - Issue Papers (Final) - Aug. 2009.pdf

Dear Ms. Hankins:

I have attached comments from the Washington Public Ports Association ("WPPA") concerning the set of MTCA-related issue papers Ecology is collecting comments about through today.

Please contact me if I can provide any additional information.

All the best,

Johan

Johan Hellman
Washington Public Ports Association
(360) 943-0760

August 31, 2009

Washington State Department of Ecology
Attn.: Martha Hankins, Policy & Technical Support Unit Supervisor
P.O. Box 47600
Olympia, WA 98504-7600

Dear Ms. Hankins:

Thank you for this opportunity to comment on the set of issue papers concerning the state Model Toxic Control Act ("MTCA") and Sediment Management Standards ("SMS") which the Department of Ecology ("Ecology") recently published. Our understanding is that these papers are intended to generate discussion about possible changes to these programs which may include a potential rulemaking.

Further, our understanding is that the comments you receive regarding these issue papers will help to inform on-going stakeholder discussions that will precede the creation of a draft rule. This is a conversation that is extremely important to more than 70 public ports in Washington state, which will follow the process closely and participate fully at every opportunity. Public ports have established a long history of success working with the MTCA and SMS programs to clean up toxic sites and turn former brownfields into productive commercial sites.

The following comments are intended to serve as a first round of feedback based on our initial review of the issue papers. Given the limited amount of time provided to review and comment, we anticipate further comments will be initiated by further review and on-going discussion. Therefore, we look forward to participating in future workshops and stakeholder discussions.

General Comments

The vast majority of cleanup actions in our state occur voluntarily as commercial real estate transactions. They are initiated by economic development opportunity, rather than government enforcement, which speaks to one of the great benefits of MTCA – the "triple bottom line" effect of accomplishing environmental stewardship (through toxic waste cleanup), immediate job creation (in the form of construction jobs), and long-term economic development opportunities.

Any future changes to MTCA should build on – and never threaten – the benefits of this market-driven approach. This is especially critical in urban areas where uncertainty associated with environmental cleanup liability is a significant factor in the underutilization and abandonment of contaminated properties. We are concerned that many of the proposed changes will impede cleanup and redevelopment actions so that fewer will actually occur. This is especially true at industrial sites where contamination commonly comes from disparate, comingled sources.

We urge Ecology to implement changes to better integrate cleanup with redevelopment. For example, the American Society for Testing and Materials ("ASTM") has developed a consensus-based standard for cleanup and redevelopment, which begins with a process of collaborative community engagement and planning. Employing this approach would require changing the existing technical orientation of Ecology under MTCA to a more integrated and collaborative approach. To that end, we support many of the recommendations made recently by the University of Washington[1]. A number of benefits are associated with broadening the current focus of MTCA beyond a technical cleanup orientation, including the leveraging of other state and regional initiatives intended to encourage high-density, transit oriented urban development while discouraging sprawl and conversion of forest and agriculture land.

Finally, we are very concerned that efforts to integrate SMS and MTCA may decrease the flexibility available in the SMS and consequently increase the cost and complexity of addressing sediment site remediation without a corresponding gain in environmental and human health protection. Although coordination of MTCA and the SMS is a laudable goal, making sediment cleanups more difficult by incorporating MTCA approaches on risk evaluation and other issues would divert valuable resources (such as time, money, expertise and good will) from the actions required to protect and improve the health of our state's lakes, rivers, and the Puget Sound.

Efforts to integrate the two programs must recognize the fundamental differences between upland soil/groundwater cleanups and the sediment cleanup context, where controlling sources that may be unrelated to an individual parties' sediment cleanup site is often essential. Failing to recognize these differences would risk putting far too much emphasis on active sediment remediation at the expense of source control and other measures that will provide better long-term results. Ultimately, a mechanistic incorporation of MTCA's cleanup approach into the SMS would create a disincentive for maintenance dredging by ports located in urban areas and would virtually guarantee that newly rehabilitated sediments will inevitably be re-contaminated by other sources, such as pollutants associated with urban stormwater.

Rather than simply merging the two programs, Ecology should first evaluate what is or is not working for each program. This would be an important first step to ensure that we do not spend scarce resources fixing what is not broken. MTCA was designed to address soil and groundwater sites where the contamination involved can more readily be tied to a discrete source that can be addressed in a full and final fashion by the site's remedial action. The SMS, by contrast, contains a greater degree of flexibility, which is appropriate where the contamination involved is much more diffuse and spans a very large geographic area. Sediment issues, along with air quality, pose unique challenges that MTCA is not currently equipped to address; simply incorporating MTCA's approach into the sediment arena would severely reduce the program's effectiveness, or make it ineffective.

The following comments concern specific issue papers:

<u>ABC Framework for Cleanup Levels</u>

We agree with the notion communicated in this issue paper that the "MTCA rule framework is not broken and, consequently, does not require a major overhaul." Along these lines, we disagree that the rule provides "too many options for establishing cleanup levels." In our experience, the flexibility granted is essential to meeting the diverse needs of unique cleanup projects in areas around the state. Given the unique circumstances of any individual project, this flexibility is not only appropriate but is absolutely essential. The notion that certain options should be dismissed because they are "rarely, if ever, used" ignores how essential they are in the instances when they are used.

Regarding site-specific cleanup levels, we understand that little flexibility exists within the current framework. However, site-specific exposure pathway analysis should only be used to support the development of alternative cleanup levels based on an exposure analysis or risk assessment, which would require substantial revisions to

[1] *Linking Toxics Cleanup and Redevelopment Across the States: Lessons for Washington State*, University of Washington, Publication No. 09-09-043A, prepared for the Department of Ecology Toxics Cleanup Program.

MTCA that are far beyond the scope of the rule-making options being considered. Requiring an exposure assessment without allowing for the development of site-specific cleanup levels would add needless complexity to MTCA cleanup without providing any additional efficiency, protection or cost.

Remedy Selection

The existing remedy selection provisions within MTCA provide site managers with necessary flexibility in determining the extent of cleanup required at a site as well as the technology to be used. Diminishing this flexibility in the interest of efficiency might actually serve to impede progress on specific cleanups or degrade the quality of cleanup efforts. Rather than setting hard deadlines on the reasonable restoration time frame, Ecology should explore other alternatives that could accelerate cleanup timelines. For example, a dispute resolution process could help to resolve issues more quickly and accelerate specific projects.

In terms of risk analysis, Ecology should assess residual risk to the environment rather than always requiring an analysis of the mass or volume of remaining contaminated material. Existing requirements for a remedial investigation already specify the collection of sufficient data to characterize the area and vertical distribution of a release. The mass of contamination (particularly in soil) is inherently difficult to accurately estimate given the spatial variability of analytical data and soil properties. Therefore, the collection of sufficient data to estimate mass merely adds cost to an investigation without a corresponding improvement to the cleanup decision-making process.

Maintaining the flexibility that currently exists within the Permanent to the Maximum Extent Possible ("PMEP") standard is important to meeting the site-specific needs and goals of individual projects. Rather than establishing a numbers-based standard (for example, "95% of contamination"), Ecology should consider additional measures for determining what is "clean," such as sustainability analyses and green metrics. Economic impacts should also be a consideration because the cost of cleanup becomes exponentially greater as the standard for what can be defined as "clean" becomes more stringent, creating a system of diminishing returns, and potentially negative returns when green house gas emissions and the risks associated with the remedial action itself are considered.

Human Health Risk Assessment and Policies

Currently, MTCA incorporates requirements[2] for site-specific evaluation of soil cleanup standards where necessary to protect human health and the environment. Since the rule already requires the use of good science and new scientific information[3], it seems duplicative and unnecessary to add additional requirements that current Environmental Protection Agency ("EPA") guidance be added. Regarding fish consumption for high-intake consumers, the EPA Region 10 framework document should be peer reviewed before consumption values are adopted for use in risk assessments.

Vapor Intrusion

Regarding vapor intrusion, we support the development of guidance materials, but do not believe rule revisions are necessary or warranted. Existing MTCA regulations are sufficient for addressing situations where vapor intrusion is a driver for the establishment of cleanup levels.

Conclusions

In closing, I would like to reiterate that these are intended as initial comments in a much larger discussion. Even so, they communicate the following themes which I expect will only become clear as we dive further into the policy discussion:

---

[2] See WAC 173-340-740(1)(c) and 173-340-745(2)(d).
[3] See WAC 173-340-702(15)(16).

1. MTCA has an established record of success based on the flexibility provided to create specific solutions for unique cleanup sites.

2. Efforts to streamline the program are only helpful as long as they do not create economic disincentives or regulatory barriers that would prevent local governments from embarking on voluntary cleanup projects.

3. Rather than adopting rules that create more rigidity, Ecology should further incentivize the program by adopting policies that promote additional flexibility.

I look forward to discussing this matter with you in depth as this process moves forward.

Sincerely,

Johan Hellman
Assistant Director

From:	Jeremy Davis
Date:	Monday, August 31, 2009 4:20:35 PM
Posted At:	Inbox
Conversation:	Comments on Rule Update
Subject:	Comments on Rule Update
Attachments:	S&W Rule Update Comments.pdf image001.jpg

Dear Ms. Hankins,

Thank you for the opportunity to express our opinions about the upcoming rule changes, and thank you for taking the time to consider our position. I've attached a brief letter in response to issues raised concerning qualifications for remedy selection. Please feel free to contact us if you have any questions about the attached letter or if we can be of further assistance to you.

Best Regards,

Jeremy Davis, P.E., C.H.M.M.
Environmental Engineer
Shannon & Wilson, Inc.
400 North 34th Street
Seattle, WA 98103

Phone (206) 695-6871
Cell (206) 300-7701
Fax (206) 695-6777
www.shannonwilson.com

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WASHINGTON

August 31, 2009

Ms. Martha Hankins
Washington State Department of Ecology
P.O. Box 47600
Lacey, WA 98504

RE: COMMENTS REGARDING MODEL TOXICS CONTROL ACT (MTCA) ISSUE SUMMARY PAPER ON REMEDY SELECTION

Dear Ms. Hankins:

Shannon & Wilson recently reviewed a letter circulating among the local community of environmental professionals requesting that individuals holding Certified Hazardous Materials Manager (CHMM) credentials be allowed responsibility in remedy selection and document submittals associated with MTCA regulations. Having a diverse team of licensed professionals and CHMM certified personnel practicing environmental and geotechnical engineering at our firm, we believe we should offer our opinion on this matter.

We wish to voice opposition to the position that the CHMM certification could provide contaminated site cleanup services, which typically requires evaluations, recommendations and designs that should be provided by Professional Engineers (P.E.), Licensed Geologists, Licensed Engineering Geologists, and/or Licensed Hydrogeologists (L.H.G.). The experience and knowledge required to obtain and maintain professional licensure are greater than that which is required for the narrowly focused CHMM certification. Licensure requirements are intended to maintain a standard level of confidence in professional opinions and designs. Reducing them for environmental professionals will lower the level of confidence the Department of Ecology can place in submitted opinions, recommendations, and designs.

At some contaminated sites, an appropriate remedial option could be designed by a professional with limited practice in environmental fields, whether or not they have any professional license or CHMM certification. However, at a site with complex geology, recalcitrant contaminants, high risk of environmental exposure, or complicated fate and transport scenarios, the level of difficulty involved in developing effective remedies requires a professional engineer or a

400 NORTH 34TH STREET · SUITE 100
P.O. BOX 300303
SEATTLE, WASHINGTON 98103
206·632·8020 FAX 206·695·6777
TDD: 1·800·833·6388
www.shannonwilson.com

multidisciplinary team of engineers and geologists. In most cases, a professional with credentials specific to the issue at hand should be in responsible charge of the project and for providing opinions. Because it is not always obvious which sites have simple or complex solutions, we feel requiring a licensed professional engineer or geologist to be in responsible charge for remedy selection is appropriate.

We sincerely thank you for considering our position. Please feel free to contact us if you have questions or if we can be of further assistance to you.

Sincerely,

SHANNON & WILSON, INC.

JEREMY MICHAEL DAVIS
STATE OF WASHINGTON
43775
REGISTERED
PROFESSIONAL ENGINEER
8/31/09

State of Washington
Hydrogeologist
337
Licensed Geologist
8/31/09
Richard John Martin

Jeremy Davis, P.E., CHMM
Environmental Engineer

Richard J. Martin, L.H.G.
Senior Associate

c: Washington State Department of Licensing, Board of Professional Engineers and Land Surveyors
Washington State Department of Licensing, Geologist Licensing Board

From:	John McCorkle
Date:	Monday, August 31, 2009 9:58:33 AM
Posted At:	Inbox
Conversation:	2009 MTCA Issue Summary - ABC Framework for Cleanup Levels
Subject:	2009 MTCA Issue Summary - ABC Framework for Cleanup Levels
Attachments:	abcFrameworkIssueSummaryJuly2009.pdf image001.jpg

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Date: **August 31, 2009**

Name: **John H. McCorkle**

Representing: **Environmental Resolutions, Inc.**

Contact Information:
John McCorkle
Program Manager
Environmental Resolutions, Inc.
815 Industry Drive
Tukwila, WA 98188
jmccorkle@eri-us.com
206-575-6427-Office
206-510-2736-Cell
206-575-6423-Fax

Title of the Issue Paper:
ABC Framework for Cleanup Levels

Comments and Supporting Information:

The MTCA rule framework does in fact appear to be unnecessarily long and complex, and a simplification of sorts would be welcomed – in application, there is often a great deal of confusion even on the side of agency staff. We have observed dramatic differences in the way that different agency site managers implement regulations – some have indicated that Method A is in fact the default cleanup level and that we could not use Method B-derived cleanup levels at a site. Clarification would benefit both the agency and the public served by these regulations and enable a consistent application of the regulations on an agency-wide basis, rather than leave the door open for the observed differences.

The proposed rulemaking option that appears to satisfy the need to clarify the rule yet retains sufficient flexibility by the user is the modification to the Exposure Pathway Format. We have used the Oregon Department of Environmental Quality's risk-based cleanup tables (and the associated guidance documentation) and found them to be clear and easily understood by the user and agency reviewers. This would facilitate a more intuitive approach to the creation of conceptual site models and the selection of the appropriate cleanup levels, and reduce inconsistency, particularly if the associated cleanup tables are posted on the Ecology website for easy access (see the Oregon DEQ's web site for a good example).

At a minimum, the agency must establish with consistency which cleanup levels are default (applicable at all sites) while ensuring that all appropriate pathways are evaluated, and remove the confusion engendered by the naming of the cleanup levels (as the term "Method A" can lead one to the erroneous conclusion that it can be used at all sites, while "Method B" would be used at some smaller percentage of sites, and "Method C" at – correctly – fewer still). Either rulemaking option (1) Exposure Pathway Format or (2) Get Rid of ABC Framework could achieve this goal. Figure 1, provided in the Issue Paper, is an excellent example of the clarity sought. Another good example can be found in the Oregon DEQ guidance documents. The new rule would need to be carefully crafted to map out a

clear, seamless process from the initial remedial investigation (creation of conceptual site model) through cleanup level and eventual remedy selection that can be easily understood by all users and agency managers.

ERI has utilized Method C (unmodified) to establish cleanup levels, but not for anything other than industrial soils. We have not utilized Modified Method C or Modified Method B, but believe that the ability to utilize site-specific and chemical-specific information currently found in these approaches provides important flexibility.

Though this issue summary does not specifically address the issue, we would also like to encourage Ecology to examine Oregon DEQ's guidance on eliminating the drinking water pathway from a site based on current and future use. This ability currently exists in MTCA, but there are currently too many constraints and too much confusion regarding the elimination of this pathway and we have found that in practice few, if any, agency site managers will eliminate the pathway regardless of site-specific conditions.

Thank you,

John McCorkle
Program Manager
Environmental Resolutions, Inc.
815 Industry Drive
Tukwila, WA 98188
jmccorkle@eri-us.com
www.eri-us.com
206-575-6427-Office
206-510-2736-Cell
206-575-6423-Fax

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ABC Framework for Cleanup Levels

Issue

What steps (if any) should Ecology take to simplify and clarify procedures for establishing cleanup levels in the Model Toxics Control Act (MTCA) cleanup regulation?

Problem Statement

Prior to beginning the rule making process, Ecology held a number of scoping meetings. Most people attending the scoping meetings appeared to believe that the MTCA rule framework was not broken and, consequently, did not require a major overhaul.[1] However, Ecology consistently heard that the rule is unnecessarily long and complex. Many of those comments centered on the methods and procedures for establishing cleanup levels:

- Too Many Methods for Establishing Cleanup Levels: The rule currently has five methods (Method A, Standard and Modified Method B, and Standard and Modified Method C) for establishing cleanup levels. Several people stated that the rule provides too many options for establishing cleanup levels. In their opinion, the rule also lacks a clear roadmap for choosing the appropriate method, which contributes to confusion and cleanup delays. Several people pointed out that three of the options (Modified Method B, Method C, and Modified Method C) are rarely, if ever, used.
- Incomplete or Inadequate Attention to Important Exposure Pathways: Some people expressed the opinion that the current approach for establishing media-specific cleanup levels does not result in cleanup levels that take into account all relevant exposure pathways. They believe the current rule framework (tables and media-specific equations) serves as a barrier to considering exposure pathways like vapor intrusion and the ground water-to-surface water pathway.
- Length and Complexity: Several people expressed concerns that the length of the rule and/or individual sections makes it more difficult to understand key rule requirements.
- Limited Integration of Requirements for Human Health and Ecological Protection: Many people stated that it was hard to understand how to use the results from the Terrestrial Ecological Evaluations to establish soil cleanup levels based on ecological protection. This concern is discussed in a separate issue summary (Terrestrial Ecological Evaluations).

[1] In this issue summary the terms MTCA cleanup regulation and MTCA rule are used interchangeably and refer to Chapter 173-340 WAC.

Background

Ecology originally adopted cleanup standards in 1991. The original MTCA cleanup regulation provided three methods for establishing cleanup levels.

- ***Method A*** can be used to establish cleanup levels at relatively small sites that involve few contaminants. Cleanup levels must be at least as stringent as (1) requirements in other applicable state and federal laws and regulations (e.g., drinking water standards); and (2) ground water and soil cleanup levels are listed in Tables 720-1, 740-1, and 745-1.
- ***Method B*** can be used to establish cleanup levels at any site. Under Method B, cleanup levels must be at least as stringent as (1) requirements in other applicable state and federal laws and regulations; and (2) cleanup levels calculated using the equations in WAC 173-340-720 through 173-340-750.
- ***Method C*** can be used to establish cleanup levels in limited situations—typically for soil cleanup levels for industrial land uses. Method C cleanup levels must be at least as stringent as (1) requirements in other applicable state and federal laws and regulations; and (2) cleanup levels calculated using the equations in WAC 173-340-720 through 173-340-750.

In February, 2001, Ecology completed significant changes to the cleanup standards. The 2001 amendments to the MTCA cleanup regulation included two additional methods (Modified Methods B and C) for establishing cleanup levels. The methods and policies for establishing Modified Method B and C cleanup levels are very similar to the standard methods. The primary differences are (1) the modified methods provide the flexibility to use chemical- or site-specific information to modify certain toxicological and exposure parameters and (2) the equations for the modified soil cleanup levels consider both soil ingestion and dermal contact exposures.

Rulemaking Options Being Considered

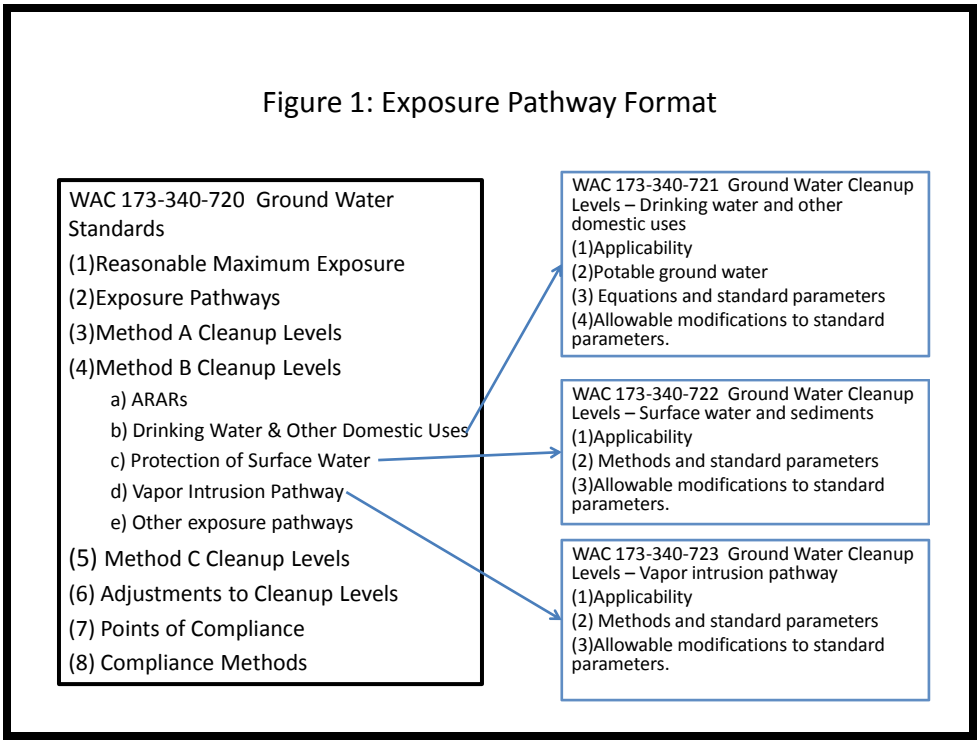
Ecology is considering several options for addressing this issue during the current rulemaking process. These include:

<u>Eliminate Modified Method B and Modified Method C Provisions</u>: Under this option, Ecology would eliminate the Modified Method B and Modified Method C provisions. The rule text would be revised to allow people to consider site-specific information for a limited number of factors (e.g., gastrointestinal absorption fraction) when using the standard Method B. This is currently allowed under WAC 173-340-708 and is similar to the provisions in the 1991 rule.

<u>Eliminate Method C</u>: Under this option, Ecology would eliminate the Method C provisions.

<u>Exposure Pathway Format</u>: Under this option, Ecology would retain three methods of establishing cleanup levels (A, B, and C). However, each media-specific cleanup level section would be organized around exposure pathways that provide better linkage to the conceptual site model prepared during the RI/FS (See Figure 1). Several other states (e.g., Michigan and Wisconsin) have rules that use this approach. The rule language would be supplemented with pathway-specific cleanup level tables that would be posted on the Ecology website as part of a

modified CLARC database.[2] This would be modeled on the cleanup tables prepared by the Oregon Department of Environmental Quality. These tables would facilitate the screening evaluations typically performed during the remedial investigation and feasibility study process.



Get Rid of ABC Framework: Under this option, Ecology would modify the rule to provide one method for establishing cleanup levels. The method would include a standard set of equations/procedures with clear direction on which parameters could be modified on a site-specific basis. Each section would be organized around exposure pathways similar to approaches used by Michigan and Wisconsin. This option is similar to the exposure pathway format, but does not include cleanup level tables in the rule. Under this option, Ecology would post pre-calculated standards based on those equations on the Ecology website.

Factors to Consider When Selecting an Option

Developing amendments to the MTCA rule will require considering and balancing of a number of issues and interests. Ecology believes that the following factors need to be considered when evaluating options for addressing this issue:

[2] Ecology's searchable database, Cleanup Levels and Risk Calculation (CLARC), is available through the Toxics Cleanup Program pages of the Ecology web site.

- How frequently have people used Method C or Modified Method C to establish cleanup levels (other than industrial soils)? Has anyone used Method C since the 2001 rule amendments introduced the remediation level concept?
- How frequently have people used Modified Method B to establish soil cleanup levels that take into account the dermal contact pathway?
- How frequently have people used or tried to use Modified Method B to establish cleanup levels based on the other factors identified in the MTCA rule? For example, are people using new or modified toxicity values, adjusting gastrointestinal absorption fractions or inhalation correction factors (WAC 173-340-720), or using modified toxicity equivalence factors?
    - If yes, how frequently?
    - Are people able to successfully establish cleanup levels based on site-specific information?
    - Did using Modified Method B to incorporate site-specific information make a practical difference in cleanup requirements?
- Would reducing the number of words and/or reorganizing the media-specific sections result in a more understandable rule?
- Would reorganizing the media-specific sections around exposure pathways facilitate more efficient information collection and evaluation during the remedial investigation and feasibility study phase?
- What are the current web-based options for providing information (relative to capabilities in 1991 when the original cleanup standards were completed)?
- What approaches are being used by other successful state cleanup programs?
- Do these options create additional implementation issues or problems (e.g., unintended consequences)?
- Are there complementary changes to other rule provisions that would be needed to support greater emphasis on exposure pathways?
    - Remedial investigation provisions (e.g., conceptual site model)
    - Remedy selection
    - CLARC database
    - Other?
- Are there other options that Ecology should consider when evaluating ways to simplify and clarify the MTCA procedures for establishing cleanup levels?

From:	John McCorkle
Date:	Monday, August 31, 2009 2:21:01 PM
Posted At:	Inbox
Conversation:	2009 MTCA Issue Summary - Use and Scope of Method A
Subject:	2009 MTCA Issue Summary - Use and Scope of Method A
Attachments:	methodAIssueSummaryJuly2009.pdf image001.jpg

Date: **August 31, 2009**

Name: **John H. McCorkle**

Representing: **Environmental Resolutions, Inc.**

Contact Information:
John McCorkle
Program Manager
Environmental Resolutions, Inc.
815 Industry Drive
Tukwila, WA 98188
jmccorkle@eri-us.com
206-575-6427-Office
206-510-2736-Cell
206-575-6423-Fax

Title of the Issue Paper:
Use and Scope of Method A

Comments and Supporting Information:

Method A cleanup levels are a simple, straight-forward set of cleanup levels that we use on approximately 90 - 95% of our cleanup sites (simple sites with few contaminants of concern). However, the prevalence of Method A levels on our and other sites often prevents us from receiving approval from agency staff of Method B-derived cleanup levels, particularly of petroleum mixtures and of chemicals with new toxicity information. We have never had an issue with obtaining approval of Method A cleanup levels due to site constraints; in fact, we have upon occasion submitted reports to the VCP program requesting use of Method B-derived cleanup levels due to overall site complexity and have been instructed to use Method A levels instead. Petroleum sites can present a challenge, as occasionally a Method B-derived cleanup level for total petroleum hydrocarbons is lower than the Method A cleanup level; indicating that the Method A level is not protective – due to the complexity of the petroleum mixture (i.e. a large portion of the mixture is in the C10-C12 range). The simplicity of Method A is welcome, but can occasionally be an obstacle to the establishment of an appropriate set of cleanup levels for a site.

We currently use Method A cleanup levels primarily on petroleum sites (from fuel terminals to gas stations) and dry cleaners. We often will use Method B cleanup levels on petroleum mixtures at these sites, while using Method A cleanup levels for lead on the same site. Method B has been useful in adjusting cleanup levels for individual substances based on total site risk requirements, particularly with petroleum as the characteristics of a petroleum mixture can change during the course of site remediation (i.e. different petroleum fractions are affected differently by different treatment technologies).

The rulemaking option that would address many of the items identified in the issue paper as “factors to consider” would include an expansion of the Method A tables similarly to Oregon’s guidance, with multiple columns for exposure pathways. However, this should be addressed in such a way as to encourage the appropriate use of Method B for evaluating total petroleum hydrocarbons to ensure that

Use and Scope of Method A

Issue

Should Ecology consider revising the Model Toxics Control Act (MTCA) cleanup regulation to make it easier to use Method A at a broader range of sites?

Problem Statement

Under the current MTCA rules, there are three methods (Methods A, B and C) for establishing cleanup levels.[1] Method A was designed to provide an easy-to-use method for sites that involve a small number of contaminants.

Most people believe that the Method A cleanup level tables facilitate cleanup actions by providing simple answers. However, people have identified several problems with the current rule provisions in terms of facilitating cleanup actions:

- The current tables contain too few chemicals.
- The current rule places too many constraints on the use of table values.
- The current rule does not provide simple answers that address all relevant exposure pathways and health endpoints (e.g., vapor intrusion, terrestrial ecological risks).

On the other hand, some people believe the current Method A tables complicate efforts to establish protective cleanup levels because:

- The Method A tables are a barrier to considering all relevant exposure pathways.
- The Method A tables are a barrier to using new toxicity information.

Background

Under the current MTCA rules, there are three methods (Methods A, B and C) for establishing cleanup levels. Ecology originally intended that ***Method A*** would be used at relatively small sites that involve few contaminants. Specifically, WAC 173-340-704(1) states that Method A may be used at the following types of sites:

> ***(a)*** *Sites undergoing a routine cleanup action as defined in WAC 173-340-200; or*
> ***(b)*** *Sites where numerical standards are available in this chapter or applicable state and federal laws for all indicator hazardous substances in the media for which the Method A cleanup level is being used.*

[1] In this issue summary the terms MTCA cleanup regulation and MTCA rule are used interchangeably and refer to Chapter 173-340 WAC.

The rule defines a **"Routine cleanup action"** as "…a remedial action meeting all of the following criteria:

- *Cleanup standards for each hazardous substance addressed by the cleanup are obvious and undisputed, and allow for an adequate margin of safety for protection of human health and the environment;*
- *It involves an obvious and limited choice among cleanup action alternatives and uses an alternative that is reliable, has proven capable of accomplishing cleanup standards, and with which the department has experience;*
- *The cleanup action does not require preparation of an environmental impact statement; and*
- *The site qualifies under WAC 173-340-7491 for an exclusion from conducting a simplified or site-specific terrestrial ecological evaluation, or if the site qualifies for a simplified ecological evaluation, the evaluation is ended under WAC 173-340-7492(2) or the values in Table 749-2 are used.*

Under Method A, cleanup levels must be at least as stringent as the following:

(a) *Concentrations of individual hazardous substances listed in Tables 720-1, 740-1, or 745-1 in this chapter;*

(b) *Concentrations of individual hazardous substances established under applicable state and federal laws;*

(c) *Concentrations that result in no significant adverse effects on the protection and propagation of terrestrial ecological receptors using the procedures specified in WAC 173-340-7490 through 173-340-7493, unless it is demonstrated under those sections that establishing a soil concentration is unnecessary; and*

(d) *For individual hazardous substances deemed indicator hazardous substances for the medium of concern under WAC 173-340-708(2) and not addressed under (a) and (b) of this subsection, concentrations that do not exceed natural background levels or the practical quantitation limit, whichever is higher, for the substance in question.*

The rule includes three tables that provide Method A cleanup levels for frequently encountered contaminants in ground water (Table 720-1), soil (Table 740-1) and industrial soils (Table 745-1).

New Scientific and Regulatory Information Since 2001 Rule Revisions

Since the 2001 rule revisions, there have been several important scientific and regulatory developments relevant to the current rulemaking process. EPA has updated the toxicity values for several hazardous substances listed in the Method A tables.

Rulemaking Options Being Considered

Ecology is considering several options for addressing this issue during the current rulemaking process. These include:

Limited Revisions to Method A: Under this option, Ecology would make limited changes to the Method A values using the Method B equations and new toxicity information. Changes would be limited to revisions needed to incorporate new standards (e.g., drinking water standards) or updated EPA toxicity values. Table 1 (below) illustrates how the use of new standards and/or toxicity values would impact some of the current Method A ground water cleanup levels. Under this option, Ecology would maintain the current constraints on the use of Method A.

Revised Method A Applicability Requirements: Under this option, Ecology would revise the criteria for deciding how and when Method A could be used to establish cleanup levels for individual sites. For example, Ecology could revise the rule to eliminate the concept of routine cleanup actions and revise the rule to reflect the current use of Method A in a wide range of situations.

Expanded Method A Tables: Under this option, Ecology would publish Method A values for other hazardous substances that have been found at Washington cleanup sites. Ecology would also expand the tables to include multiple columns that include cleanup levels for different pathways (for example, direct contact, soil to ground water, vapor intrusion, ecological protection). Site managers and investigators would need to decide which pathways were applicable and select the most stringent value as the Method A cleanup level. This approach is similar to guidance materials published by the environmental agencies in Oregon, Michigan, and New Jersey.

Get Rid of Method A: Under this option, Ecology would remove the Method A tables from the rule. Ecology would modify the rule to provide one method for establishing cleanup levels. The method would include a standard set of equations/procedures with clear direction on which parameters could be modified on a site-specific basis. Each section would be organized around exposure pathways similar to approaches used by Michigan and Wisconsin. Under this option, Ecology would post pre-calculated standards for multiple pathways on the Ecology Website.

Factors to Consider When Selecting an Option

Developing amendments to the MTCA cleanup regulation will require considering and balancing a number of issues and interests. Ecology believes that the following factors need to be considered when evaluating options for addressing this issue:

- What types of sites are currently using Method A to establish cleanup levels?
- When have Method A values been used in combination with Method B values (for example, using Method A for lead and Method B for other substances)?
- What constraints (if any) should be placed on the use of Method A because of unaddressed risk issues (additive risk, cleanup requirements for high fish consumers, dermal exposure in soil, and impacts to surface water and sediment from contaminated ground water)?
- Should Ecology consider expanding the list of substances included in the Method A tables? If so, which substances should Ecology considering adding to the tables?

- If Ecology were to consider reducing the number of substances included in the Method A tables, which substances would be the highest priority to retain in the rule?
- When using Method A, are people evaluating the potential for vapor intrusion problems? Is there a presumption that Method A values are sufficiently protective of indoor air?
- How frequently has it been necessary to adjust cleanup levels for individual substances based on total site risk requirements? How has that worked?

Table 1: Comparison of Current Method A Ground Water Cleanup Levels and Revised Method A Ground Water Cleanup Levels Calculated using Method B Equations and Current Toxicity Values Included in the CLARC database

Substance	Current Method A Levels (ug/L)	Revised Method A Levels (ug/L)	Rationale
Tetrachloroethylene	5	0.8	The current Method A cleanup level is based on the maximum contaminant level (MCL). The CLARC database includes an updated cancer slope factor (0.54 kg-day/mg) developed by the California Environmental Protection Agency and endorsed by EPA's National Center for Environmental Assessment.[2] Using this value, the revised Method A cleanup level would be 0.8 ug/L (MCL adjusted for a 10^{-5} cancer risk).
Toluene	1,000	640	The current Method A cleanup level is based on the maximum contaminant level (MCL). EPA published a new reference dose (0.08 mg/kg/day) in 2005.[3] Using this, value, the revised Method A cleanup level would be 640 ug/L (MCL adjusted for a hazard index of 1).
Trichloroethylene	5	2.4	The current Method A cleanup level is based on the maximum contaminant level (MCL). The CLARC database includes an updated oral reference dose (0.0003 mg/kg/day) that was developed by EPA's National Center for Environmental Assessment.[4] Using this value, the revised Method A cleanup level would be 2.4 ug/L (MCL adjusted for a hazard index of 1).
Vinyl Chloride	0.2	0.3	The current Method A cleanup level is based on the maximum contaminant level (MCL) adjusted for a 10-5 cancer risk. The CLARC database includes a new cancer slope factor (1.5 kg-day/mg) that applies the EPA cancer risk guidelines published in 2005.[5] The revised Method A cleanup level would be 0.3 ug/L (MCL adjusted for 10^{-5} cancer risk).

[2] Cleanup Levels and Risk Calculation (CLARC) database – Guidance on Toxicological Information. Tetrachloroethylene Toxicity Information (Perc, PCE, Perchloroethylene) CAS #127-18-4. Available on Ecology's Toxics Cleanup Program website.
[3] Environmental Protection Agency. 2005. Toxicological Review of Toluene. Published in IRIS database.
[4] Cleanup Levels and Risk Calculation (CLARC) database – Guidance on Toxicological Information. Recommended Trichloroethylene (TCE) Toxicity Values and MTCA Cleanup Levels CAS #79-01-6. Available on Ecology's Toxics Cleanup Program website.
[5] Cleanup Levels and Risk Calculation (CLARC) database – Guidance on Toxicological Information for Vinyl chloride. Available on Ecology's Toxics Cleanup Program website.

the value selected as the cleanup level is protective; and that these values should be re-evaluated after remediation if a remediation technology has been used which alters the petroleum mixture.

Thank you,

John McCorkle
Program Manager
Environmental Resolutions, Inc.
815 Industry Drive
Tukwila, WA 98188
jmccorkle@eri-us.com
www.eri-us.com
206-575-6427-Office
206-510-2736-Cell
206-575-6423-Fax

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From:	John McCorkle
Date:	Monday, August 31, 2009 4:17:38 PM
Posted At:	Inbox
Conversation:	2009 MTCA Issue Summary - Terrestrial Ecological Evaluations
Subject:	2009 MTCA Issue Summary - Terrestrial Ecological Evaluations
Attachments:	terrestrialEcologicalEvaluationsIssueSummaryJuly2009.pdf image001.jpg

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Date: **August 31, 2009**

Name: **John H. McCorkle**

Representing: **Environmental Resolutions, Inc.**

Contact Information:
John McCorkle
Program Manager
Environmental Resolutions, Inc.
815 Industry Drive
Tukwila, WA 98188
jmccorkle@eri-us.com
206-575-6427-Office
206-510-2736-Cell
206-575-6423-Fax

Title of the Issue Paper:
Terrestrial Ecological Evaluations

Comments and Supporting Information:

Clarifications to the MTCA TEE Requirements would be welcomed, as there does seem to be some confusion about the process and implementation. However, changing the policies and procedures used in 2001 to determine the values in 749-2 and 749-3 might add to the confusion, particularly if only some of the values were updated in this manner – the best solution to this would be to use the best current scientific information (the current TRVs and BAFs) to update these tables using the same policies and procedures used in 2001. Additionally, including these values in an expanded Method A CUL table would make it much more clear that the TEE is a required part of the process. This option makes particular sense if updated concurrently with the Method A table rulemaking options considered in the first two issue papers, which included potentially adding pathway/receptor columns for vapor intrusion, surface water, and dermal contact.

Thank you,

John McCorkle
Program Manager
Environmental Resolutions, Inc.
815 Industry Drive
Tukwila, WA 98188
jmccorkle@eri-us.com
www.eri-us.com
206-575-6427-Office
206-510-2736-Cell
206-575-6423-Fax

Terrestrial Ecological Evaluations

Issue

What rule revisions are needed (if any) to clarify and update the terrestrial ecological evaluation process under the Model Toxics Control Act (MTCA)?

Problem Statement

The purpose of terrestrial ecological evaluations (TEEs) as required by the MTCA cleanup regulation is ensuring protection of plants and animals. Since 2001, the TEE process has been used at a wide range of sites. While Ecology does not maintain statistics, most sites appear to be qualifying for an exemption. Most of the remaining sites have performed a simplified TEE. Only a handful of sites have conducted site-specific TEE's. Given this distribution, it appears that the overall process is working as originally intended. However, a number of implementation problems appear to contribute to cleanup delays and inefficiencies:

- People are sometimes unaware of the TEE provisions until late in the remedial investigation/feasibility study.
- Many consultants and site managers find it difficult to understand and interpret the requirements for performing a TEE.
- The MTCA cleanup regulation lacks a clear roadmap explaining how the results of the TEE can be used to establish cleanup levels and select remedies.
- The TEE soil screening values do not reflect toxicity data developed since the mid-1990s.

Overview

The TEE sections (WAC 173-340-7490 through 7494) were added to the MTCA rule in 2001 to provide a process for evaluating impacts to plants and wildlife. [1] This implemented recommendations from the MTCA Policy Advisory Committee to the Washington legislature.[2]

The purpose of a terrestrial ecological evaluation is to protect land-based plants and animals from exposure to contaminated soil. There are three options:

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[1] This Issue Summary uses the terms MTCA cleanup regulation and MTCA rule interchangeably; both refer to Chapter 173-340 WAC.

[2] Final Report of the Model Toxics Control Act Policy Advisory Committee, December 15, 1996. http://www.ecy.wa.gov/programs/tcp/mtca_pac/mtcapac.html

1. Evaluate and document whether an exemption applies. A site with very little habitat or little opportunity for plants and animals to be exposed to the contamination is exempt from conducting further evaluation.
2. Determine whether the site qualifies for a simplified TEE. Sites with limited habitat of modest quality and no endangered or threatened species qualify for the simplified TEE.
3. Conduct a site-specific TEE. This is required for sites with high quality habitat or endangered or threatened species. This may also be voluntarily conducted at any site.

New Scientific and Regulatory Information Since 2001 Rule Revisions

A large amount of new scientific information has been developed on the toxicity and bioavailability. Over the last several years, EPA has published Ecological Soil Screening Levels (EcoSSLs) for 17 metals and 4 organic compounds frequently found at Superfund sites.

Rulemaking Options Being Considered

Ecology is considering several options for addressing this issue during the current rulemaking process. These include:

Editorial and Simple Structural Changes: Under this option, Ecology would not make any significant revisions to the MTCA rule. Ecology would make editorial and structural changes to clarify the TEE requirements. Examples of these types of changes are listed in Table 1 below.

Updating the Ecological Screening Tables: Under this option, Ecology would revise the soil screening concentrations and wildlife exposure model based on current scientific information and EPA regulatory guidelines.[3] Examples of these types of changes are listed in Table 2 below.

Integrating, Policy Clarifications and Decision Roadmap: Under this option, Ecology would make modest revisions to the MTCA rule to better integrate the TEE process (for example, clarifying how the TEE process fits into setting cleanup standards and remedy selection). Ecology would clarify certain policy issues. Examples of these types of changes are listed in Table 3 below.

Combination: Under this option, Ecology would make revisions to integrate the TEE process with other parts of the rule, clarify certain policy issues and update the TEE tables using current scientific information and regulatory guidance.

[3] WAC 173-340-900 Tables 749-2 through 749-5.

Factors to Consider When Selecting an Option

Developing amendments to the MTCA cleanup regulation will require considering and balancing a number of issues and interests. Ecology believes that the following factors need to be considered when evaluating rulemaking options:

- Issues identified when implementing the current rule provisions.
- Whether the changes result in a more understandable process.
- New scientific information on the bioavailability and toxicity of hazardous substances developed since 2001.
- New regulatory policies and guidance developed by EPA and other states.
- Whether particular options comply with the requirements of the Administrative Procedures Act.

Table 1: Editorial and Simple Structural Changes to Clarify TEE Requirements		
Issue	Under Consideration	Comment
Rule Structure: Parts of Sections 7490-7494 are confusing and repetitive.	These Sections would benefit from targeted reorganization, such as: • Consolidating and moving provisions that pertain throughout the TEE Sections to Section 7490, such as provisions related to institutional controls. • Moving the criteria for site-specific TEE's to the site-specific TEE Section (7493). • Moving the TEE provisions closer to the RI/FS requirements.	Editorial changes.

Table 2: Updating TEE Tables Based on New Scientific Information		
Issue	Under Consideration	Comment
Tables 749-2 and 749-3: These tables no longer reflect the latest scientific information.	There are a number of options that could be used to update these tables: • Use threshold reference values (TRVs) data and bioaccumulation factors (BAFs) in EPA database to update table values using the same policies and procedures that were used in 2001. • Use TRVs based on EPA's approach of basing them on NOAELs instead of MTCA's approach of using the LOAELs. This would be a policy change. • Substitute EPA TEE screening values for values in these tables, where available. EPA uses different policy choices and a wildlife exposure model than was used in MTCA.	EPA has not established EcoSSLs for all of the hazardous substances in the MTCA tables. Using EPA EcoSSL's policy would result in some values being based on different policies and procedures than other values in the MTCA tables.

Dioxins: The TEE tables (Table 749-2 & 3) contain dioxin and furan screening levels but no reference is made to use of TEFs. This implies the total of all dioxin and furan congeners must be compared against these screening levels.	Should the rule include a table of mammalian toxicity equivalency factors (TEFs) from the World Health Organization (WHO) and a footnote describing their use for TEEs?	This is consistent with current practice.

Table 3: Integration, Policy Clarifications and Decision Roadmap

Issue	Under Consideration	Comment
Undeveloped Land Definition: It is unclear what types of "roads" qualify for dividing up habitat.	• Should the language be amended to incorporate WSDOT road classifications? See: www.wsdot.wa.gov/mapsdata/todo/functionalclass.htm	This is basically a question of whether or not the road disrupts the activities of potential receptor species at the site. Even a road that is heavily traveled during daylight hours may not disrupt habitat if seldom used at night.
Net environmental benefit: Sometimes the soils and sediments that are contaminated are located in heavily forested areas or wetlands that would be destroyed to achieve protective cleanup levels. The current rule doesn't allow this to be factored into cleanup level determinations.	• Should the rule allow the potential impacts to existing species to be taken into account when establishing cleanup levels based on ecological protection and/or selecting remedies?	Could lead to less complete cleanups in ecologically sensitive areas. Institutional controls are ineffective in controlling plant and animal exposures. May need to compensate for natural resource damages to habitat productivity.
Point of Compliance: The relationship between the remedy selection process and use of a conditional POC is unclear.	• Should the rule clarify that conditional points of compliance must be justified with a disproportionate-cost analysis.	Conditional points of compliance could also be useful in preserving high-value habitat within the site.
Determining Compliance: TEE Sections do not explicitly state that compliance monitoring requirements and statistical methods in Section 740 apply to TEE soil cleanup levels. This has been questioned at some sites.	• Should the rule be revised to clarify that Section 740(7) applies to TEE soil cleanup levels?	May need flexibility for site-specific compliance method requirements (e.g., different compliance methods may be needed for wetland restoration).
"Site Definition": When determining the size of a site under Section 7491, some have confused "site" with "property".	• Clarify provision.	"Site" is any area hazardous substances have come to be located and is not limited by the property boundary.

Table 3: Integration, Policy Clarifications and Decision Roadmap (continued)		
Issue	Under Consideration	Comment
Simplified TEE's: The role of the table values and bioassays in determining if a TEE can be ended and in establishing cleanup levels is unclear.	• Clarify provision.	
Site-Specific TEE's: Sites with extensive off-property prime habitat may not be required to conduct a site-specific TEE when the habitat is off the PLP's property.	• Should the rule be revised to clarify that sites with such habitat must do a site-specific TEE?	Changes are required to protect ecological receptors that may use nearby contaminated areas.
Intermittent Streams and Wetlands: It is unclear what cleanup standard applies to the substrate in intermittent streams and wetlands: soil or sediment.	• Apply the more stringent of the MTCA soil standards (TEE or Human Health) and sediment standards to intermittent/seasonal streams and wetlands?	This issue is not limited to TEEs. What standard to apply may differ depending on how long standing water is present and other standards used to delineate wetlands/intermittent streams.
Tables 740-1 and 745-1: The TEE requirements are sometimes ignored because they are not captured in this table.	• Should the Method A tables include a TEE column and appropriate descriptive footnotes? • If yes, which screening values (Table 749-2 or 749-3) should be used?	If the Table 749-2 values are used, most TEE values will be less stringent than the current Method A values. Use of these values would be consistent with the intent that Method A be used for simple sites.

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From:	Jeanie DeFrang
Date:	Monday, August 31, 2009 2:52:30 PM
Posted At:	Inbox
Conversation:	City of Port Angeles Response to MTCA & SMS Issue SummaryPapers
Subject:	City of Port Angeles Response to MTCA & SMS Issue SummaryPapers
Attachments:	DOE letter 81309.pdf Ecology Issue Papers Comments_31Aug09.pdf

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Please see the attached response from the City of Port Angeles.

CITY OF PORT ANGELES
WASHINGTON, U. S. A.
City Manager's Office

DEPARTMENT OF ECOLOGY

Date: August 31, 2009
Name: Kent Myers, City Manager
Representing: City of Port Angeles
Contact Info: P.O. Box 1150
City of Port Angeles, WA 98362
e-mail Kmyers@cityofpa.us
phone (360) 417-4630

Re: MTCA & SMS Issue Summary

The City of Port Angeles is grateful for the opportunity to review and comment on the MTCA and SMS Issue Summary Papers. With the assistance of Exponent we have reviewed those papers, and there are four issues that are of particular interest to the City of Port Angeles. Exponent has provided comments on those issues in the attached paper. The City of Port Angeles submits these comments with its full concurrence and approval. We ask that you consider these in any further rule making that may follow in connection with these issues.

In submitting these papers, the City of Port Angeles is urging Ecology to be both deliberative and practical in establishing cleanup and sediment standards. There can be no question that protection of human health is and should be the first and foremost consideration. There is a point, however, beyond which raising cleanup standards produces no discernable increased benefit to human health. Beyond that point, any increases in cleanup and sediment standards, actually produce a negative consequence to the community. Overly rigorous standards actually discourage cleanup efforts, increase cleanup expenses out of proportion to any benefit, and hamper redevelopment and new development. There is nothing to be gained, and much to be lost, by such overly rigorous standards. In commenting on the Issue Papers, the hope and intent of the City of Port Angeles is that the Department of Ecology will maintain emphasis on protection of human health while considering the negative consequences of overly rigorous standards.

Thank you.

Very truly yours,

Kent Myers
City Manager

WEB:KM:jd
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Phone: 360-417-4500 / **Fax**: 360-417-4509
Website: www.cityofpa.us / **Email**: citymanager@cityofpa.us
321 East Fifth Street - P.O. Box 1150 / Port Angeles, WA 98362-0217

Exponent®
15375 SE 30th Place, Suite 250
Bellevue, WA 98007

Technical Memorandum
August 31, 2009

Comments on the Washington State Department of Ecology's Issue Summary Papers

On behalf of the City of Port Angeles, Exponent has reviewed the Washington State Department of Ecology's (Ecology) Model Toxics Control Act (MTCA) and Sediment Management Standards (SMS) issue summary papers and provides the following comments.

In our review, Exponent identified the following issues meriting discussion and further consideration:

- Consideration of background concentrations in sediment
- Evaluation and use of fish consumption data for sediment cleanup levels
- Consideration of fish diet fraction
- Biota-sediment accumulation factors (BSAFs).

These issues are more fully discussed below.

Issue:
Consideration of Background Concentrations in Sediments

Relevant to the following Issue Summary Papers:
Background Concentrations in Setting Sediment Cleanup Standards
Human Health Risks in Setting Sediment Cleanup Standards
Integrating the Sediment Management Standards and Model Toxics Control Act Rules

Description of the Issue / Application in Port Angeles:
Marine sediments throughout the Puget Sound, including sediments on the bottom of Port Angeles harbor, often contain chemicals at concentrations that are consistent with "background", but still exceed the limits established under MTCA and SMS. It is not possible to effect a long-term clean up to a concentration below a background level. In such cases Ecology will use background concentration as a cleanup level. Therefore, the issue of how "background" is defined in Ecology's regulations will have a significant impact on remedial investigations and sediment cleanup efforts, particularly in urban bays such as Port Angeles.

Ecology's Issue Summary Papers:
The Background Concentrations issue summary paper discusses the differences in how MTCA and SMS address background concentrations in sediment, focusing on whether revisions to SMS are necessary to describe how background concentrations will be used when making decisions

about sediment cleanup standards. In the Human Health Risks issue summary paper, Ecology proposes that a site-specific sediment cleanup level would be set at either 1) a value derived using a risk-based calculation, 2) "natural" background, or 3) the practical quantitation limit, whichever is highest.

Discussion of this issue:
As Ecology considers how to integrate MTCA and SMS, and particularly how to more explicitly integrate protection of human health into SMS, the definition of background will be critical. Sediment cleanup levels based on protection of human health for some chemicals will be less than "background" concentrations, particularly when subsistence fish and shellfish consumption is considered within the already conservative equations for calculating health risk, in which risk is overestimated to ensure health protection. Remedial cleanup levels will therefore default to background. For example, in its dioxin risk assessment technical memorandum, the Dredged Material Management Program (DMMP) (2009b) calculated dioxin risks as high as 2.7×10^{-4} for subsistence level consumption of fish and shellfish caught in rural bays (more than 100 times higher than the MTCA target risk level, and 2.7 times higher than the upper limit of the U.S. Environmental Protection Agency [EPA] acceptable risk range). Thus, it will be important for SMS revisions to include an appropriate definition of "background" that includes consideration of land use and area background.

MTCA currently defines natural background as not influenced by "localized human activities." However, for some chemicals (e.g., dioxins/furans), much of the Puget Sound is affected by global and regional human activities, making natural background, by the current MTCA definition, difficult or impossible to achieve in many cases. Although current levels of ubiquitous chemicals such as dioxins/furans and polycyclic aromatic hydrocarbons (PAHs) are largely derived from more recent emissions, sources such as forest fires and historical camp fires and wood burning have contributed to levels of these persistent compounds in the environment. In addition, "background" concentrations differ substantially by location. For example, sediment dioxins/furans concentrations are approximately 2 parts per trillion (ppt) toxicity equivalent (TEQ) in rural bays of the Puget Sound and 4 ppt TEQ in areas of the Puget Sound main basin, excluding urban bays (DMMP 2009a). When urban bays (excluding near point sources) are included, "background" sediment dioxins/furans concentrations range from 4 to 17 ppt TEQ (depending on the method used to combine urban and non-urban datasets). [1] Although DMMP (2009a) does not report background concentrations for urban bays only, they would be greater than the 4 to 17 ppt TEQ for urban and non-urban bays combined. If background is defined to exclude concentrations for ubiquitous chemicals arising from non-point sources in a general area, then the bays of many cities, even in more rural areas, may be considered contaminated and in excess of state standards. Thus, a range of potential concentrations could be considered background, even in the absence of local sources. MTCA and SMS guidance should consider these differences and allow for application of background concentrations appropriate for the site.

[1] These concentrations correspond to the upper 90th percentile confidence limit on the 90th percentile of the distribution of dioxin/furan TEQ concentrations.

The way that background is defined will also have feasibility implications for remedial investigations and cleanup in two ways. First, it will be impossible for urban and/or industrial areas to meet natural or pristine background levels for some chemicals. In urban areas, sediment dioxins/furans concentrations greater than Puget Sound main basin background will extend far beyond the urban embayment. Therefore defining site limits will be difficult, if not impossible, if background is defined by non-urban concentrations. Second, even if a particular site were remediated to non-urban background levels, the site will eventually be "re-contaminated" by migration of adjacent sediments with urban background levels and from other urban sources (e.g., surface runoff, atmospheric deposition).

Conclusion:
In the Human Health Risks issue summary paper Ecology raises the possibility of defining background differently in urban versus non-urban areas. This is a practical approach that takes into consideration past and future land use, and will facilitate quicker remedial decisions and cleanups. EPA and the U.S. Army Corps of Engineers, under the DMMP, recently completed a sediment survey in Puget Sound designed to evaluate background (non-urban impact) conditions for dioxins/furans and polychlorinated biphenyls (PCBs). In addition to dioxins/furans and PCB congeners, samples were evaluated using cell/DNA assays and analyzed for sediment conventional analytes (total organic carbon [TOC], grain size, percent solids) and the full suite of DMMP contaminants of concern including semivolatile organic compounds, PAHs, Aroclors®, pesticides, and trace metals. These data are available and can be used as a basis for defining pristine, rural, non-urban, and urban background, and subsequently for evaluation of specific sites, such as Port Angeles Harbor sediments. The DMMP recognizes that "the breadth of characterization of these sediments will support the use of this data for the DMMP as well as other programs focused on sediment contamination in Puget Sound." The alternative would be to establish site-specific procedures to determine background chemical and tissue concentrations. Although such an approach will allow for more flexibility for site-specific conditions, it would be extremely resource intensive to define background on a site-by-site basis and potentially inconsistent.

Recommendation:
An effective approach to addressing background in sediment investigation is to use the available regional data to develop general categories for background levels with allowance for site-specific data collection if warranted.

Issue:
Evaluation and Use of Fish Consumption Data for Sediment Cleanup Levels

Relevant to the following Issue Summary Papers:
Fish Consumption Rates for High Exposure Population Groups
Human Health Risks in Setting Sediment Cleanup Standards
Integrating the Sediment Management Standards and Model Toxics Control Act Rules

Description of the Issue / Application in Port Angeles:
Fish consumption studies conducted among high seafood consumers in the Pacific Northwest (e.g., Native Americans, Asian Pacific Islanders) indicate that these groups consume fish and shellfish at a higher rate than the general public. Marine sediment investigations, such as the one underway for Port Angeles harbor, and the sediment cleanup levels derived as part of those investigations are directly influenced by the level of fish consumption assumed. Depending on the choice of studies and how they are interpreted, there could be a 10-fold difference or more in the sediment cleanup level derived for a site and thus, a large impact the magnitude and extent of remediation required.

Ecology's Issue Summary Papers:
The Fish Consumption Rate issue summary paper focuses on whether there is a need for rule revisions to address health risks for people who consume large amounts of fish and shellfish (e.g., Native Americans, Pacific Islanders). Under MTCA, a fish consumption rate of 54 g/day is used to develop cleanup standards. Fish consumption studies conducted among high seafood consumers in the Pacific Northwest indicate that these groups consume fish and shellfish at a higher rate than the MTCA default.

Ecology is considering four options to address this issue, ranging from developing guidance to supplement existing standards to modifying MTCA and SMS to include default fish consumption rates for high-end consumers. All of the options would rely on evaluation of several fish consumption studies conducted in the Pacific Northwest (e.g., the Suquamish study, the Tulalip study) and/or the EPA Region 10 *Framework for Selecting and Using Tribal Fish and Shellfish Consumption Rates for Risk-Based Decision Making at CERCLA and RCRA Cleanup Sites in Puget Sound and the Strait of Georgia* (U.S. EPA 2007).

Discussion of this issue:
In their report, *Analysis and Selection of Fish Consumption Rates for Washington State Risk Assessments and Risk-based Standards*, Ecology (Keill and Kissinger 1999) evaluated several fish consumption studies conducted in the Northwest, including two surveys of fish consumption among tribal populations, including the Tulalip tribe (Toy et al. 1996) and the Columbia River Tribes (CRITFC 1994). Ecology evaluated each study for "experimental design, target population, sample size, location, and potential bias" with a "focus on issues that will markedly affect study results and use of those results in Ecology regulations and risk

assessments." Based on their review, Ecology recommended default consumption rates of 178 g/day for fish/shellfish by coastal/marine tribes and 175 g/day for tribes consuming freshwater fish for risk-based standards, screening criteria, or individual risk assessment based on a reasonable maximum exposure (RME) scenario. Ecology selected these values after conducting a probabilistic analysis showing that consumption at this level would be protective of at least 90 percent of the population.

As noted in the Fish Consumption Rate issue summary paper "[s]cientific information on tribal fish and shellfish harvesting and consumption habits and patterns [need to be considered], including study designs, results, and factors relevant to interpreting the study results." Accordingly, data and reports for Toy et al (1996) and CRITFC (1994) are available for review and Ecology (Keill and Kissinger) reported on their own review of these studies. Since publication of Ecology's 1999 report (Keill and Kissinger 1999), two additional reports have been completed and are identified in the Fish Consumption Rate issue summary paper as under consideration by Ecology: the Suquamish study (Suquamish Tribe 2000) and the EPA Region 10 Framework document (U.S. EPA 2007). However, to date neither of these reports has undergone a formal, external peer-review process. In particular, accurate interpretation of the Suquamish fish consumption survey can only be accomplished through appropriate scientific review. Unfortunately, neither the data nor adequate details of the study are available to allow for a scientific evaluation of the study methodology, results, and analysis. A full review of the Suquamish study (or any dietary survey study) would evaluate study design (e.g., survey method, number of survey days, timing of the survey period relative to related events such as harvest seasons and festivals), data analysis methods and results (e.g., consistency of results with other similar studies, or within the study itself), and interpretation of results. Although it is within the Tribe's right to retain control of the data, if the study results are to be applied to non-Tribal stakeholders and/or outside tribal lands, it should be expected that the data would receive the same level of review and comment applied for non-tribal studies used to support regulatory statutes or guidance.

As summarized in Table 3 of Fish Consumption Rate issue summary paper, the seafood consumption rates derived from the Suquamish survey are significantly higher than those for other Pacific Northwest tribes or EPA's national guidance on tribal consumption rates. This large difference in consumption rates and the large impact it would have on site-specific risk estimates, cleanup levels, and the magnitude and extent of remediation required, highlights the need for an independent, third-party review of the Suquamish survey, to document that state regulations are scientifically defensible.

The EPA Framework recommended a 95th percentile consumption rate from the Suquamish data set (U.S. EPA 2007). The Suquamish study itself neither presents nor recommends the use of a 95th percentile value. In fact, the Suquamish study summary report acknowledges that the consumption rate data are "quite skewed" and notes that the 90th percentile for all seafood is almost 4 times larger than the median and this is the result of "a few individuals with very high consumption rates." Very few people would ever consume seafood at the 90th or 95th percentile rates, and it is unlikely that even those few would sustain that level of intake daily over a few years, much less their lifetime. In fact, the statistical report for the Suquamish study states, "…non-consumers and consumers who reported zero percent (0%) consumption from Puget [Sound] were removed from the data used to develop consumption rate percentiles"

(Polissar and Liao 2007). Thus, the data from the Suquamish study represents the extreme upper end of reported consumption rates from a study group that only included the highest end of subsistence seafood consumption. Ecology has previously stated that a RME fish consumption rate assumption should "…be used in a scenario where the *overall* degree of protection should fall somewhere between the 90th and 98th percentile of exposure…" (Keill and Kissinger 1999). When combining multiple high-end exposure assumptions (i.e., 95th percentile estimates), the degree of conservatism will be compounded, resulting in an exposure estimate well above the 95th percentile. Consequently, Ecology recommended a fish consumption rate that resulted in a 90th percentile exposure estimate when combined with other exposure assumptions. This approach is consistent with the U.S. Food and Drug Administration's use of the 90th percentile to represent more exposed individuals in a population from chronic dietary exposures based on national dietary survey data (U.S. FDA 2006).

Conclusion:
Fish consumption studies conducted among high seafood consumers in the Pacific Northwest indicate that these groups consume fish and shellfish at a higher rate than the MTCA default. Marine sediment investigations, such as the one underway for Port Angeles harbor, and the sediment cleanup levels derived as part of those investigations will be highly influenced by fish consumption rate guidance and regulations. Dietary surveys in particular, such as the fish consumption studies under consideration by Ecology, are challenging to design and conduct and will have limitations that must be evaluated in the context of how the data will be used. Therefore, any studies used to support regulatory statutes or guidance should undergo external scientific peer-review and be available for public review and comment. This type of review has not yet occurred for the Suquamish study or EPA's Framework document.

Recommendation:
1) Ensure that any studies or reports used to support regulatory statutes or guidance undergo external scientific peer-review and are available for public review and comment.

2) Continue Ecology's approach to ensuring a high-level of public health protection and conduct a probabilistic analysis of any new fish consumption data to identify a fish consumption rate consistent with an *overall* high level of exposure (when combined with other high-end exposure estimates).

Issue:
Consideration of Fish Diet Fraction

Relevant to the following Issue Summary Papers:
Fish Consumption Rates for High Exposure Population Groups

Description of the Issue / Application in Port Angeles:
As discussed in the previous comment, marine sediment investigations are directly influenced by the level of fish consumption assumed. When evaluating potential health risks associated with fish consumption from a specific location or site, such as Port Angeles harbor, it is important to consider both the amount of fish a person eats and how much of that fish comes from the site under evaluation. The "fish diet fraction" (sometimes called "fractional intake") is used in risk assessment and cleanup level derivation to represent the site contribution to overall fish consumption.

Ecology's Issue Summary Papers:
The Fish Consumption Rate issue summary paper focuses on whether there is a need for rule revisions to address health risks for people who consume large amounts of fish and shellfish, and identifies other exposure parameters that may be considered for adjustment, including fish diet fraction.

Discussion of this issue:
Ecology identifies the issue of whether the fish diet fraction (among other factors) should be adjusted when calculating cleanup levels. MTCA rules for deriving surface water cleanup levels include a default fish diet fraction of 0.5 (i.e., 50% of the fish a person eats comes from the site). Ecology does not currently have equivalent guidance for sediments. As background to the issue of developing fish consumption rates for high end consumers, Ecology states, "RME [reasonable maximum exposure] represents a high end (but not worst case) estimate of individual exposures. It provides a conservative estimate that falls within a realistic range of exposures. The RME takes into account both current and reasonably foreseeable future conditions." Based on this statement, it follows that cleanup level development should include a consideration of the level of resource a site can realistically provide and incorporate that information through the fish diet fraction assumption. The types of information that would affect the choice of a fish diet fraction include the size of the site relative to overall fishing grounds, the current resource quality and capacity, and potential future resource quality given realistic assumptions about site use and development.

Recommendation:
A default fish diet fraction of 0.5 is for sediment cleanup levels would be consistent with current MTCA standards for surface water. However, guidance for developing site-specific sediment cleanup levels should include a consideration of the level of resource a site can realistically provide and provide methods for incorporating that information through the fish diet fraction assumption.

Issue:
Biota-Sediment Accumulation Factors

Relevant to the following Issue Summary Papers:
Human Health Risks in Setting Sediment Cleanup Standards
Integrating the Sediment Management Standards and Model Toxics Control Act Rules

Description of the Issue / Application in Port Angeles:
A biota-sediment accumulation factor (BSAF) is a number that expresses the relationship between a chemical concentration in biota (e.g., fish, shellfish, or other marine animals or plants) and in sediment. A BSAF is necessary to derive a sediment cleanup level based on protection of human health from consumption of chemicals in fish. Therefore, the choice of BSAFs will directly affect marine sediment investigations, such as the one underway for Port Angeles harbor.

Ecology's Issue Summary Papers:
Both the Human Health Risks and the Integrating the SMS and MTCA issue summary papers discuss considerations for more explicitly addressing human health risk in sediment cleanup standards. In the Human Health Risk issue summary paper, Ecology indicates they are considering developing formulas in the SMS to evaluate the fish consumption pathway, incorporating chemical-specific BSAFs.

Discussion of this issue:
Although the SMS state that numeric sediment quality standards correspond to levels that "have no significant health risk to humans," their derivation does not currently include calculation of human health risk. If the SMS are modified to calculate human health risk-based cleanup levels, it will be critical to identify and recommend scientifically appropriate assumptions, with flexibility for site-specific considerations (e.g., availability of fish/shellfish, local consumption rates, site use, site-specific BSAFs). In addition to fish consumption rate (discussed in a previous comment), BSAFs are also necessary for deriving sediment cleanup levels based on human consumption of fish. The BSAF represents the amount of transfer of a chemical from sediment to fish tissue and can vary greatly depending on site-specific characteristics, including the chemical and physical properties of the sediment (e.g., total organic carbon), the fish species (or other biota) being evaluated, and the frequency of exposure of fish to sediments. Sediment concentrations do not always correlate with biota tissue concentrations. For example, recent data from the Lower Duwamish Waterway indicate that inorganic arsenic and carcinogenic PAHs in clams are not correlated with sediment concentrations of those chemicals. In such cases, neither default nor site-specific BSAFs will accurately predict exposure or risk.

Recommendation:
Default BSAFs may be useful for initial screening in marine sediment investigations. However, many sites will require a site-specific approach. Any SMS rule changes that address use of BSAFs in human health risk-based sediment cleanup levels should take into consideration the

site- and species-specific nature of BSAFs and allow for an alternative approach when scientifically warranted.

References

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From:	Allan Swensson
Date:	Monday, August 31, 2009 3:52:01 PM
Posted At:	Inbox
Conversation:	Comment for MTCA Rule Update
Subject:	Comment for MTCA Rule Update
Attachments:	Comment to MTCA Remedies.doc

Dear Ms Hankins:
I am a member of the Pacific Northwest Chapter of the Alliance of Hazardous Materials Professionals. I intend to get my CHMM certification this year. My comment is attached.

Allan Swensson
Field Chemist
Environmental and Hazardous Waste Services
Emerald Services, Inc.

August 31, 2009

Ms. Martha Hankins
Washington State Department of Ecology
P.O. Box 47600
Lacey, WA 98504

Subject: Comments regarding MTCA Issue Summary Paper on Remedy Selection Cost and Time Associated with Professional Certification.

Dear Ms. Hankins,

The Pacific Northwest Chapter and the Eastern Washington Chapter of the Alliance of Hazardous Materials Professionals (AHMP) wish to request that time and cost associated with professional certification requirements be addressed in the Model Toxic Cleanup Act (MCTA) Issue Summary Paper on Remedy Selection. We believe our request, as briefly explained below, fits the category of "modest policy clarifications." We request that the following be added to Table 2 of the Issue Summary Paper on Remedy Selection:

Current Provision	Under Consideration	Comment
Professional Certification Cost and Time. Other states have successfully reduced time and costs by environmental professionals with the Certified Hazardous Materials Manager (CHMM) credential for remedy selection and document submittals.	Should Section 840 be amended to include competency criteria for additional professional credentials such as Certified Hazardous Materials Managers (CHMM) that demonstrate appropriate knowledge and expertise regarding remedy selection and document submittals?	Should speed up remedy selection and reduce unnecessary time and cost associated with reports, plans, and specifications submitted under WAC 173-340.

Environmental professionals with the CHMM credential are trained with knowledge of how to manage hazardous material impact to the environment. Required knowledge for the exam-based CHMM credential includes regulations, industry standards, chemistry and physics, and management principles relevant to hazardous materials associated with toxic site cleanup.

Time and cost associated with professional certification requirements have been reduced in other states because environmental professionals with the CHMM credential do not need to unnecessarily obtain additional document approval from other professionals whose credential is currently specified in the MTCA regulations. In fact other states such as Missouri already recognize the CHMM credential on a par with that of Professional Engineer and Registered Geologist, http://gachmm.pluggedintech.com/CHMMauthorities.htm..

We request that the Department of Ecology similarly allow environmental professionals with the CHMM credential to assume responsibility in remedy selection and document submittals associated with the MTCA regulations. Thank you for your consideration.

Sincerely,
Allan Swensson, member AHMP Pacific Northwest Chapter

From:	Kris Hendrickson
Date:	Tuesday, September 01, 2009 11:36:47 AM
Posted At:	Inbox
Conversation:	MTCA/SMS Issue Paper Comments
Subject:	MTCA/SMS Issue Paper Comments
Attachments:	Issue Paper Comments 090109.pdf

Martha,
Attached are our comments on the MTCA/SMS Issue Papers. We appreciate the opportunity to provide comments during the rule revision process. Call or email if you have questions.
Kris

Kristy J Hendrickson, PE ¨ Principal
Landau Associates, Inc.
130 2nd Ave. S, Edmonds, WA 98020
425.778.0907 ¨ fax 425.778.6409 ¨ cell 206-910-1378
khendrickson@landauinc.com ¨ www.landauinc.com

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Notice: This communication may contain privileged or other confidential information. If you have received it in error, please advise the sender by reply email and immediately delete the message and any attachments without copying or disclosing the contents. Thank you.

LANDAU ASSOCIATES

September 1, 2009

Washington State Department of Ecology
Toxics Cleanup Program
PO Box 47600
Olympia, WA 98504-7600

Attn: Martha Hankins, Policy & Technical Support

RE: PROPOSED UPDATES TO THE MODEL TOXICS CONTROL ACT

Dear Ms. Hankins:

Landau Associates understands that the Washington State Department of Ecology (Ecology) is proposing to update the Model Toxics Control Act Cleanup Regulation (MTCA, Chapter 173-340 WAC) and the Sediment Management Standards (SMS, Chapter 173-204 WAC). We appreciate the opportunity to provide comments on the MTCA and SMS Issue Summary Papers that Ecology prepared as part of the rule revision process. Although Landau Associates represents a number of private and public entities who are involved with remedial actions under MTCA and SMS, the comments provided in this letter are based on our experience on a variety of sites and do not represent the comments of any specific clients.

Landau Associates suggests focused changes to the MTCA rule to streamline requirements and to make the rule consistent with changes in federal and state laws. We also suggest alignment of MTCA and SMS requirements, which should facilitate compliance with both rules at shoreline sites with upland and aquatic zone contaminants.

Comments on some of the specific Issue Summary Papers are provided below.

ABC FRAMEWORK FOR CLEANUP LEVELS

The existing ABC framework, providing a constrained process for development of cleanup levels based on all relevant exposure pathways, has been in use since 1991. We suggest maintaining this framework, although minor changes, such as combining standard and modified Method B and standard and modified Method C, may assist with clarity and would reduce the length of these sections. The flexibility to use site-specific parameters in modified Methods B and C may be rarely used; however, for some sites that flexibility is important and should be retained. The option for Method C soil cleanup levels is important at some industrial properties and should also be maintained. Significant reorganization of the cleanup level framework would not significantly improve the cleanup level development process, would cause confusion, and should be avoided.

Ecology's on-line CLARC database increases consistency of cleanup levels among sites by providing values for ARARs and MTCA rule formulas for groundwater, soil, surface water, and air. CLARC does not provide soil concentrations for protection of groundwater or surface water or for terrestrial ecological protection, leading some people who rely on CLARC when developing cleanup levels to forget these important exposure pathways. We recommend adding notes regarding these pathways to the CLARC database rather than revising the MTCA rule. We also suggest you consider modifying the CLARC database to support calculation of soil cleanup levels based on protection of groundwater, surface water and terrestrial ecological receptors.

USE AND SCOPE OF METHOD A

Use of Method A provides a simple way of identifying cleanup levels at some sites. We suggest limited revisions to the Method A cleanup levels tables and reduction in the limits on use of Method A cleanup levels. We also suggest including I,2-dibromoethane (EDB) in the Method A tables.

TERRESTRIAL ECOLOGICAL EVALUATIONS

Editorial changes to clarify the Terrestrial Ecological Evaluations would be helpful. Identification of specific dioxin/furan toxicity equivalency factors to be used in terrestrial ecology evaluations would also be helpful and would increase consistency. We suggest that Ecology not change from consideration of LOAELs to NOAELs in determining protection of terrestrial ecological organisms.

REMEDY SELECTION

Remedy selection is critical to the success of the cleanup program. The MTCA rule should promote selection of remedies that are protective of human health and the environment, are consistent with current and likely future land use, and are reasonable. Minor editorial changes to the current rule would make the remedy selection process clearer and more straightforward. More significant changes, including most of the policy revisions identified in this issue paper, are not needed.

The existing rule identifies engineering controls such as containment as protective, appropriate cleanup actions in certain situations, including for large volumes of relatively low levels of hazardous substances where treatment is impracticable. Recently, however, it appears that Ecology is becoming less receptive to demonstrations that treatment is impracticable and containment with institutional controls is an appropriate remedy. That provision in the rule should be maintained and strengthened to assure that Ecology staff will consider engineering controls as part of a protective remedy.

Model remedies are explicitly allowed under MTCA. Development of specific model remedies, such as containment of widespread, shallow heavy metals soil contamination, would provide a means of

streamlining pre-cleanup activities, leading to faster implementation of remedies Ecology has already determined to be protective.

VAPOR INTRUSION

We suggest that Ecology develop and issue guidance regarding vapor intrusion, rather than add specific requirements in the MTCA rule.

INTEGRATING THE SEDIMENT MANAGEMENT STANDARDS AND MTCA RULES

The SMS and MTCA rule requirements should be more consistent, allowing cleanups of shoreline and aquatic sites to be compliant with both. It is important that definitions and terminology for integral regulatory elements, such as cleanup levels and cleanup standards, be standardized between the regulations. We also recommend that the remedy development, evaluation and selection processes be standardized between the two regulations, either by modifying and more thoroughly developing the cleanup process in the SMS regulations, or by referencing the applicable MTCA regulation sections in the SMS regulations as the applicable regulatory requirements for the development and evaluation of sediment cleanup actions.

* * * * * * *

We hope that you will consider these comments in determining issues to focus on during the rule revision process. Please contact me at 425-778-0907 or khendrickson@landauinc.com if you have questions about these comments.

LANDAU ASSOCIATES, INC.

Kristy J. Hendrickson, P.E.
Principal

KJH/tam
9 1 09 Edmdata sharedoc mtca Issue Paper Response Ltr 0809.doc

From:	Hamidu-Musah, Ayishetu
Date:	Tuesday, September 01, 2009 3:25:39 PM
Posted At:	Inbox
Attachments:	POS - RComments re MTCA-SMS rule revisions.pdf

Yesterday we mistakenly sent an earlier draft of this letter. Please replace it with the attached version. Thank you.

Ayishetu Grace Hamidu-Musah

Legal Assistant

Port of Seattle

2711 Alaskan Way, Seattle, WA 98121

Tel: (206) 787-3601/ Fax: (206) 728-3205

hamidu-musah.a@portseattle.org

Port of Seattle

P.O. Box 1209
Seattle, WA 98111-1209
Tel: (206) 728-3000

www.portseattle.org

To: Washington State Department of Ecology – Toxics Cleanup Program

From: Susan Ridgley and Kathy Bahnick, Port of Seattle

Subject: Initial comments on Ecology issue papers related to MTCA/SMS rule revisions

Date: August 31,2009

Dear Department of Ecology:

We are providing the following comments in response to the MTCA and SMS Issue Summary Papers and Ecology's request to provide comments (published on the agency's internet site July 10,2009). As indicated in the public announcement, we are also forwarding these comments to: RuleUpdate@,ecy.wa.gov. The Port of Seattle presents its comments within three overall categories:

- The rule revision process
- Defining and prioritizing issues
- Initial comments on priority issues

The rule revision process

Ecology's website currently outlines only a general rule revision process. According to that description, after the CR-101 (Pre-Proposal Statement of Inquiry) is filed, Ecology will analyze rule change issues and develop draft proposed rule language. Ecology will then talk with affected groups, stakeholders, and technical experts. The timeline for the rule revision process is listed as follows:

- CR-101 – Expected filing date: late Fall, 2008
- CR-102 – Expected filing date: Spring 2010
- CR-103 – Expected filing date: Fall 2010

CR-101 was actually filed February 1,2009. Ecology has indicated that opportunities for input will be announced on agency's website but provides very little detail about the format or schedule of these future opportunities.

We encourage Ecology to provide the details for a transparent public and stakeholder participation process as soon as possible, including an accompanying schedule that allows for dialogue and input prior to preparation of the draft rule changes. This is important to the Port of Seattle and other organizations attempting to schedule and enlist resources for providing meaningful involvement, in order to promote a complete exchange and discussion of ideas. We hope and assume that this comment letter won't be our sole opportunity to provide input on these important issues, and look forward to an opportunity to engage more fully on these issues.

Given that we can't be sure of any such future opportunity, however, in this comment letter we have attempted to be straightforward and direct about what are the Port's thoughts on these issues.

Defining and prioritizing issues

The Issue Summary Papers successfully identify many of the major considerations associated with the potential rule revisions and present a range of options for addressing the issues. While we commend Ecology for its thoroughness, the Port is concerned that you may have "bitten off more than you could chew, particularly if you intend to conclude the process by the fall of 2010 as posted.

We therefore recommend that Ecology divide this rulemaking process into two phases. The first phase would focus on resolving a short list of critical issues by the fall 2010 deadline. The remaining issues would either be resolved through alternative means (*e.g.* technical guidance), undergo a second phase of rulemaking after the first phase is completed, or simply be dropped.

The October 22,2008 MTCA Rule Update published by Ecology included a list of questions to be used to prioritize issues:

- Will resolving this issue promote more efficient or effective cleanups?
- Is this an issue frequently encountered at Washington cleanup sites?
- Do we need to make updates because of new science or changed regulations?
- What priority do affected groups place on the issue?
- Does Ecology have the resources to address the issue as part of the current rule making effort?
- Is the issue "ripe" for consideration? That is, does there exist sufficient scientific knowledge or technical experience related to the issue?
- Is rule-making the most effective mechanism for addressing the issue?

We agree these are the right questions to ask. Applying this list of criteria to the issues presented, the following issues rise up as being priority issues for rule-making, and where a decision on the topic is urgently needed. Listed below are these priority issues, which are inter-related:

- Integrating the SMS and MTCA rules
- Human health risks in setting sediment cleanup standards
- Background concentrations in setting sediment cleanup standards

- Freshwater sediment standards

Of the remaining issues, we believe the following would benefit fiom consultation with an advisory committee or board similar to the Science Advisory Board, followed by the development of either technical guidance or rules: lead-contaminated soils; vapor intrusion; and fish consumption rates.

The Port would also direct Ecology to the letter that was sent in by the Washington Public Ports Association (WPPA) on behalf of its member, including the Port of Seattle. We are in agreement with the position expressed in the WPPA letter, particularly the issue-specific comments regarding the ABC Framework, Remedy Selection, and Vapor Intrusion.

Initial comments on priority issues

As mentioned above, many of the issues that the Port believes are high-priority issues are inter-related, with a good deal of overlap in both the problem identification and the possible solutions. Therefore, at the outset, we thought it would be helpful to present the Port' overall view of the problem and solution pathways. We will then address the individual issues as laid out in the Issue Summary Papers.

Washington is fortunate to have a well crafted, thoughtful and technically sound approach to sediment management, as incorporated into the Sediment Management Standards (SMS). These rules work well for sediment sites, because they appropriately reflect the practical realities of sediment sites (particularly urban sediment sites) and provide a flexible means to develop and implement cleanup solutions. These practical realities include such factors as the lack of control over pollutant inputs, the size of the sites, and the ability to ascertain actual risks and exposure pathways. The SMS allow Ecology to incorporate relevant concepts of cost, technical feasibility and net environmental benefits in crafting the remedy.

The problem arises when agencies attempt to apply MTCA's concepts and principles at sediment cleanup sites. The current MTCA regulations were not designed to address the unique issues associated with contaminated sediment sites. When MTCA concepts are imported into sediment cleanups, the result is a complete breakdown in the ability to implement a permanent remedy. It simply does not work to import such concepts as meeting "natural background" as a requirement for a final remedy, an inflexible 10^{-6} risk target, across-the-board application of tribal consumption rates and relatively short restoration time fiames into the sediment cleanup decision-making model. Doing so makes it literally impossible to achieve a final sediment cleanup in an urban area, no matter how much effort is expended by the implementing party.

The Port believes that the best approach to MTCA/SMS integration is to adjust MTCA to incorporate the SMS approach to sediment cleanups, which allows for greater flexibility than MTCA currently permits. In addition, the SMS should be revised as follows:

- Anthropogenic, site-specific or area-wide background levels, not natural background, should be permissible final cleanup levels in urban areas.

- Allow a range of calculated risks for human health (as EPA does)
- Retain option for natural recovery

With that as background, the following are the Port's initial reactions to the options presented in the Issue Summary Papers. In preparing these comments, we have adhered closely to the format laid out in the Issue Papers, and have directly stated our preference regarding each of the proposed alternatives, with little explanation. We hope to have a chance in the future to discuss in more detail why we support the various alternatives.

Integrating the Sediment Management Standards and Model Toxics Control Act rules

- Terminology: Some standardization in the terminology used in MTCA vs. SMS is probably appropriate
- Cleanup Standards: We support the option called "decision framework using a range of concentrations." The "do nothing" option is inadvisable, and the other options presented are too inflexible.
- Remedy Selection: We support revising the MTCA rule to incorporate sediment cleanup-specific actions.

Human health risks in setting sediment cleanup standards

- Decision-making framework in setting cleanup standards: We could support either the "do nothing" (site specific) option, or the last option which develops standards based on a range of acceptable values (similar to current SMS approach). The other options presented are not workable, and we believe are not necessary to protect human health.
- Level of protection: We support identifying a range of acceptable risk levels, consistent with the EPA approach.
- Procedures: As discussed below, we support a definition of background that differentiates between urban and non-urban areas.

Background concentrations in setting sediment cleanup standards

- Definition of background: We support defining background applicable to sediment cleanup standards, including differentiating between urban and non-urban areas. (As we understand it, this option is essentially the same as adopting in the SMS the definition of "area background.") The area boundaries should reflect the realities of recontamination potential.
- Statistical methods and sample locations: We do not believe it is necessary or appropriate to put this level of technical detail in a rule. Doing so will only complicate

the state's ability to incorporate new science and technology into its decision-making in the future. However, we believe it is very appropriate to reflect our current state of knowledge in a guidance document.

Freshwater sediment standards

- We support developing both numeric chemical and biological fieshwater sediment standards (the third option). Ecology should develop standards and decision criteria based on multiple lines of evidence. Use of chemical standards alone to make cleanup decisions has been shown to result in a very high rate of false positives (i.e., saying you have a bigger problem than you do) at a number of freshwater sites, including Portland Harbor.
- Use of regional data sets (for both chemistry and toxicity) is more relevant in the development of state standards than use of national data and should be strongly encouraged.
- If sufficient data exist, Ecology should examine the effect of watershed characteristics on the bioavailability of metals and its effect on interpretation of the chemical standards.
- Ecology should carefully evaluate the performance of individual effects endpoints with respect to their accuracy in identifying toxicity before incorporating an endpoint into any chemical standard or biological protocol.
- If other existing sediment quality guidelines are incorporated into a set of state fieshwater standards, they should be evaluated in terms of the overall reliability to predict toxicity for sites in Washington. Further, any published guidelines should meet the narrative intent of Ecology's sediment management goals.
- If benthic community structure is included in the freshwater standards, metrics and thresholds should be selected from among those that are currently used in the evaluation of fieshwater benthic communities for streams and large rivers.
- The issue of what endpoints should be included in the SMS was extensively evaluated as part of Ecology's re-examinationlrevision of the benthic community endpoints in several contracts managed by Brett Betts. These conclusions and recommendations should be reviewed as part of Ecology's current effort

Thank you for this opportunity to provide comments, and we look forward to working with you in the future on these important issues.

From:	Woodke, Mark
Date:	Wednesday, September 02, 2009 8:19:18 AM
Posted At:	Inbox
Conversation:	MTCA Update Comments
Subject:	MTCA Update Comments
Attachments:	CHMMcomments_MTCA_remedies.doc

Thanks for your attention.

Mark Woodke, CHMM
ecology and environment, inc.
International Specialists in the Environment
720 Third Avenue #1700, Seattle, WA 98104
Telephone (206) 624-9537 Fax: (206) 621-9832
mwoodke@ene.com

September 2, 2009

Ms. Martha Hankins
Washington State Department of Ecology
P.O. Box 47600
Lacey, WA 98504

Subject: Comments regarding MTCA Issue Summary Paper on Remedy Selection
Cost and Time Associated with Professional Certification.

Dear Ms. Hankins,

The Pacific Northwest Chapter and the Eastern Washington Chapter of the Alliance of Hazardous Materials Professionals (AHMP) wish to request that time and cost associated with professional certification requirements be addressed in the Model Toxic Cleanup Act (MCTA) Issue Summary Paper on Remedy Selection. We believe our request, as briefly explained below, fits the category of "modest policy clarifications." We request that the following be added to Table 2 of the Issue Summary Paper on Remedy Selection:

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Environmental professionals with the CHMM credential are trained with knowledge of how to manage hazardous material impact to the environment. Required knowledge for the exam-based CHMM credential includes regulations, industry standards, chemistry and physics, and management principles relevant to hazardous materials associated with toxic site cleanup.

Time and cost associated with professional certification requirements have been reduced in other states because environmental professionals with the CHMM credential do not need to unnecessarily obtain additional document approval from other professionals whose credential is currently specified in the MTCA regulations. In fact other states such as Missouri already recognize the CHMM credential on a par with that of Professional Engineer and Registered Geologist, http://gachmm.pluggedintech.com/CHMMauthorities.htm..

We request that the Department of Ecology similarly allow environmental professionals with the CHMM credential to assume responsibility in remedy selection and document submittals associated with the MTCA regulations. Thank you for your consideration.

Sincerely,
Mark Woodke, PNW Chapter Member, AHMP

Dorrah, Adrienne (ECY)

From: Doubt, Roark M [roark.m.doubt@boeing.com]
Posted At: Wednesday, September 02, 2009 12:18 PM
Conversation: CHMM accreditation
Posted To: TCP Rule Updates

Subject: CHMM accreditation

August 29, 2009

Ms. Martha Hankins
Washington State Department of Ecology
P.O. Box 47600
Lacey, WA 98504

Subject: Comments regarding MTCA Issue Summary Paper on Remedy Selection
Cost and Time Associated with Professional Certification.

Dear Ms. Hankins,

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Engineer and Registered Geologist,
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We request that the Department of Ecology similarly allow environmental professionals with the CHMM credential to assume responsibility in remedy selection and document submittals associated with the MTCA regulations. Thank you for your consideration.

I concur with the information above.
Sincerely,

Roark M. Doubt, P.E., CHMM
PNW Chapter Member AHMM

From:	McManamen, Donald J (Redmond)
Date:	Wednesday, September 02, 2009 1:36:22 PM
Posted At:	TCP Rule Updates
Conversation:	MTCA Regulatory Update - CHMM credential
Subject:	MTCA Regulatory Update - CHMM credential
Attachments:	CHMMcomments_MTCA_remedies - mcmanamen 090209.doc

---

Hello Ms Hankins,

Please find attached comments on the proposed changes to the MTCA regulations regarding CHMM credentialing. If you have any questions or comments, please let me know.

Thanks, Don

Donald J. McManamen, CHMM
EH&S Specialist
Environmental Health and Safety
****
Aerojet-General Corporation
P.O. Box 97009
Redmond, WA 98073-9709
Office: 425-936-5308
Fax: 425-882-5754
Cell: 425-269-2319
****
<<CHMMcomments_MTCA_remedies - mcmanamen 090209.doc>>

September 2, 2009

Ms. Martha Hankins
Washington State Department of Ecology
P.O. Box 47600
Lacey, WA 98504

Subject: Comments regarding MTCA Issue Summary Paper on Remedy Selection
Cost and Time Associated with Professional Certification.

Dear Ms. Hankins,

The Pacific Northwest Chapter and the Eastern Washington Chapter of the Alliance of Hazardous Materials Professionals (AHMP) wish to request that time and cost associated with professional certification requirements be addressed in the Model Toxic Cleanup Act (MCTA) Issue Summary Paper on Remedy Selection. We believe our request, as briefly explained below, fits the category of "modest policy clarifications." We request that the following be added to Table 2 of the Issue Summary Paper on Remedy Selection:

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We request that the Department of Ecology similarly allow environmental professionals with the CHMM credential to assume responsibility in remedy selection and document submittals associated with the MTCA regulations. Thank you for your consideration.

Sincerely,
Don

Donald J. McManamen, CHMM
Member Pacific Northwest Chapter-AHMM
Aerojet-General Corporation

From:	Mary Devany
Date:	Wednesday, September 02, 2009 5:28:59 PM
Posted At:	TCP Rule Updates
Conversation:	CHMM Credential for the Model Toxic Cleanup Act (MCTA)
Subject:	CHMM Credential for the Model Toxic Cleanup Act (MCTA)
Attachments:	DOE Letter RE the CHMM Credential.doc

Please consider the attached comment regarding this Rule.

Respectfully submitted,

Mary

Mary C. DeVany, MS, CSP, CHMM
DeVANY INDUSTRIAL CONSULTANTS
14507 NW 19th Ave,
Vancouver, WA 98685-8003
Phone: (360) 546-0999
Fax: (360) 546-0777
mdevany@earthlink.net

DeVANY INDUSTRIAL CONSULTANTS

14507 NW 19th Ave., Vancouver, WA 98685 U.S.A. (360) 546-0999 Fax: (360) 546-0777

September 2, 2009

Ms. Martha Hankins
Washington State Department of Ecology
P.O. Box 47600
Lacey, WA 98504

Subject: Comments regarding MTCA Issue Summary Paper on Remedy Selection
Cost and Time Associated with Professional Certification.

Dear Ms. Hankins,

The Pacific Northwest Chapter and the Eastern Washington Chapter of the Alliance of Hazardous Materials Professionals (AHMP) wish to request that time and cost associated with professional certification requirements be addressed in the Model Toxic Cleanup Act (MCTA) Issue Summary Paper on Remedy Selection. We believe our request, as briefly explained below, fits the category of "modest policy clarifications." We request that the following be added to Table 2 of the Issue Summary Paper on Remedy Selection:

Current Provision	Under Consideration	Comment
Professional Certification Cost and Time. Other states have successfully reduced time and costs by specifying environmental professionals with the Certified Hazardous Materials Manager (CHMM) credential for remedy selection and document submittals.	Should Section 840 be amended to include competency criteria for additional professional credentials, such as the Certified Hazardous Materials Manager (CHMM), that demonstrate appropriate knowledge and expertise regarding remedy selection and document submittals?	Should speed up remedy selection and reduce unnecessary time and cost associated with reports, plans, and specifications submitted under WAC 173-340.

Environmental professionals with the CHMM credential must demonstrate knowledge and competency of how to manage hazardous material impacts to the environment. Required knowledge and experience competencies for the exam-based CHMM credential include regulations, industry standards, chemistry and physics, and management principles relevant to hazardous materials associated with toxic site clean-up.

Time and cost associated with professional certification requirements have been reduced in other states because environmental professionals with the CHMM credential do not need to obtain additional document approval from other professionals whose credential is currently specified in the MTCA regulations. In fact, other states such as Missouri already recognize the CHMM credential on a par with that of Professional Engineer and Registered Geologist, http://gachmm.pluggedintech.com/CHMMauthorities.htm.

We respectfully request that the Department of Ecology similarly allow environmental professionals with the CHMM credential to assume responsibility in remedy selection and document submittals associated with the MTCA regulations. Thank you for your consideration.

Sincerely,

Mary C. DeVany

Mary C. DeVany, MS, CSP, CHMM

From:	Brett D Smith PE, PG
Date:	Thursday, September 03, 2009 5:58:05 AM
Posted At:	TCP Rule Updates
Conversation:	CHMMs on par w PEs and LGs?!
Subject:	CHMMs on par w PEs and LGs?!
Importance:	High

Martha,

I believe that a CHMM should be recognized ONLY if they undergo a process of screening similar to and as RIGOROUS as that experienced by Professional Engineers and Licensed Geologists.

All that I "objectively" request, on behalf of many PEs and LGs is this - make sure that IF you allow the CHMM credential to be ON PAR with a PE or LG, that said designee truly possesses the capabilities (via formal education and professional rigor / testing) to actually BE ON PAR with PEs and LGs!

I reviewed the qualifying criteria for a CHMM and I have concerns with the college degree requirement and with the 3-year "experience" requirement. For instance, could an English major with three years apprenticeship actually obtain equivalence with a PE or an LG? I genuinely hope that such a person would NOT be made "on par" with a PE or an LG! I saw this phenomenon occur in the Phase 1 ESA arena, where realtors with trumped up credentials were hired (in lieu of PEs and LGs) to inspect gas stations and similar sensitive properties and quite often overlooked serious recognized environmental conditions (RECs), not because they were ill-intentioned or bad people, but SOLELY BECAUSE OF THEIR RELATIVE INABILITY to handle the problem (ie, to identify RECs). I always attributed this "realtor-turned-PE" problem entirely to a simple lack of required credentials - plain and simple.

Needless to say, I am NOT unbiased in this request (as a PE and an LG in WA), BUT I nonetheless STRONGLY BELIEVE that allowing LESS RIGOROUS credentialed professionals into the decision / responsibility matrix regarding sensitive environmental issues will once again create another "realtor-turned-PE" capabilities problem that none of us should have to deal with again!

Martha, I very much appreciate your serious consideration of my comments in this email and trust that you will make a THOROUGH ANALYSIS of all facets of the CHMM "on par" process.

Sincerely,

Brett D. Smith PE, LG
Environmental Compliance Associates, LLC
www.e-c-associates.com

From:	Chad Kean
Date:	Thursday, September 03, 2009 8:39:07 AM
Posted At:	TCP Rule Updates
Conversation:	Comments on MTCA
Subject:	Comments on MTCA
Attachments:	CHMM_Comments_MTCA_remedies.doc

Ms. Hankins,

Please find attached my comments regarding the MTCA regulation.

Thanks,

Chad Kean, CHMM, CPSWQ
Project Scientist

E3RA Inc.
9802 29th Ave. W #B102
Everett, WA 98204
Office 425-356-3372
Fax 425-356-3374
Cell 425-299-7864
www.e3ra.com

August 29, 2009

Ms. Martha Hankins
Washington State Department of Ecology
P.O. Box 47600
Lacey, WA 98504

Subject: Comments regarding MTCA Issue Summary Paper on Remedy Selection Cost and Time Associated with Professional Certification.

Dear Ms. Hankins,

The Pacific Northwest Chapter and the Eastern Washington Chapter of the Alliance of Hazardous Materials Professionals (AHMP) wish to request that time and cost associated with professional certification requirements be addressed in the Model Toxic Cleanup Act (MCTA) Issue Summary Paper on Remedy Selection. We believe our request, as briefly explained below, fits the category of "modest policy clarifications." We request that the following be added to Table 2 of the Issue Summary Paper on Remedy Selection:

Current Provision	Under Consideration	Comment
Professional Certification Cost and Time. Other states have successfully reduced time and costs by environmental professionals with the Certified Hazardous Materials Manager (CHMM) credential for remedy selection and document submittals.	Should Section 840 be amended to include competency criteria for additional professional credentials such as Certified Hazardous Materials Managers (CHMM) that demonstrate appropriate knowledge and expertise regarding remedy selection and document submittals?	Should speed up remedy selection and reduce unnecessary time and cost associated with reports, plans, and specifications submitted under WAC 173-340.

Environmental professionals with the CHMM credential are trained with knowledge of how to manage hazardous material impact to the environment. Required knowledge for the exam-based CHMM credential includes regulations, industry standards, chemistry and physics, and management principles relevant to hazardous materials associated with toxic site cleanup.

Time and cost associated with professional certification requirements have been reduced in other states because environmental professionals with the CHMM credential do not need to unnecessarily obtain additional document approval from other professionals whose credential is currently specified in the MTCA regulations. In fact other states such as Missouri already recognize the CHMM credential on a par with that of Professional Engineer and Registered Geologist, http://gachmm.pluggedintech.com/CHMMauthorities.htm..

We request that the Department of Ecology similarly allow environmental professionals with the CHMM credential to assume responsibility in remedy selection and document submittals associated with the MTCA regulations. Thank you for your consideration.

Sincerely,

Chad Kean, CHMM, CPSWQ
Project Scientist

E3RA Inc.
9802 29th Ave. W #B102
Everett, WA 98204
Office 425-356-3372
Fax 425-356-3374
Cell 425-299-7864
www.e3ra.com

Hankins, Martha (ECY)

From: Shirley Nixon [shirleynixon@olympus.net]
Sent: Wednesday, September 02, 2009 12:40 PM
To: Hankins, Martha (ECY)
Subject: Comments on MTCA Sediment Management Standards Rule Update

To:
Martha Hankins
Policy and Technical Support Unit Supervisor
Toxics Cleanup Program
Washington Department of Ecology

Dear Ms. Hankins,
I am interested in Ecology's efforts to update the Model Toxic Control Act's cleanup regulations, and appreciate being added to the listserv group yesterday. My comments here are brief, because I first became better acquainted with some of the issues through an agenda item for last night's Port Angeles City Council meeting and have not fully explored Ecology's issue papers. I will look forward to opportunities to provide more input as rule development progresses.
I attended the Port Angeles City Council meeting yesterday (9/1/2009) and heard a presentation by the City's consultant, Michael Garry of Exponent Environmental Sciences. The City had hired Exponent to "review Ecology's issue papers and formulate recommended comments that the City could submit by Ecology's August 31 deadline." Discussion following Mr. Garry's presentation revealed that members of the City Council had not received a copy of the consultant's report, and had not seen or participated in preparing the City's comments. I'm mentioning this because I want to make you aware that comments submitted by the City of Port Angeles on August 31, 2009 apparently reflect the views of staff and consultants, but not necessarily the views of Port Angeles citizens and elected officials.
I believe that it is important to better integrate contaminated sediment cleanup standards with newer information about risks to human health, and applaud Ecology's efforts to do so. In particular, I am concerned about human health risks from exposure to dioxins, and the dioxin levels that exist in marine sediments in Port Angeles Harbor.
I sense from listening to last night's City Council presentation that an area of concern involves the inter-relationship between fish consumption levels and "safe" levels of exposure to bio-accumulated dioxins in fish from contaminated marine areas. The presenter explained that Ecology's current MTCA rule focuses upon a fish consumption rate of 54 grams per day, but studies of certain Puget Sound tribal populations indicate that a fish consumption rate of between 186 to 489 grams a day is the norm. He seemed to be suggesting that raising the rate above 54 grams would be unreasonable, given local "background concentrations" of the contaminant. However, I strongly disagree. Fifty-four grams equates to less than two ounces. I believe that many citizens living in the Port Angeles area consume more than an average 54 grams a day of locally-caught fish. Particularly in these tougher economic times, I am noticing that many more people are supplementing their diets with seafood caught or gathered from local waters.
When it comes to exposure to something as toxic as dioxins, I believe regulators should err on the side of caution and strictly limit the cumulative risks to human health. In my opinion, a fish consumption rate greater than 54 grams a day would more realistically reflect the norm for this area. I do not think it unreasonable to assume an average fish consumption rate of at least six ounces a day (170 grams) for the general population of this region, and would support even higher levels if studies of particular populations show that higher rates are justified.
Thank you for considering my comments. I look forward to following the progress of the MTCA rule updates.

Shirley Nixon
P.O. Box 178
Port Angeles, WA 98362
(360) 417-0850
shirleynixon@olympus.net

RECEIVED
SEP 01 2009
Washington State
Department of Ecology

August 31, 2009

Department of Ecology
Policy & Technical Support Unit Supervisor
Toxics Cleanup Program
Attention: Martha Hankins
PO Box 47775
Olympia, WA 98504-7775

RE: Comments to MTCA Cleanup Regulation Issue Summaries

Dear Ms. Hankins:

Thank you for providing the Port of Tacoma with this opportunity to provide the Washington State Department of Ecology (Ecology) with our comments to the issue summaries related to the Model Toxics Control Act (MTCA) cleanup regulations update. The Port of Tacoma appreciates the considerable effort that has gone into the development of the issue summaries, and we recognize much more work remains before effective rule language can be drafted. Our comments are brief, given the scope, complexity and implications associated with the issue summaries we received on July 31, 2009. Nevertheless, we are very interested in actively participating in the committee or committees Ecology plans to convene during the next six months to further evaluate these issues and make recommendations to Ecology.

I understand that the process for soliciting stakeholder input for rule making, guidance and policy will be established following a review of Ecology's program budget and an assessment of the level of staff support that can be provided to the advisory committees. Robust stakeholder involvement is a critically important means to solicit technical input on MTCA rule and policy, particularly in light of legislation passed just this year to eliminate Ecology's statutory obligation to maintain a MTCA Science Advisory Board. We look forward to learning more about Ecology's plans for the active participation of stakeholders.

Turning to our comments, we note that the vast majority of cleanup actions in Washington State are voluntary cleanups under MTCA. These cleanups are typically motivated by commercial real estate transactions including development, and generally do not occur as a result of Ecology enforcement. The Port of Tacoma believes that future changes to MTCA should build on this proven approach to achieve successful cleanups at a greater number of sites, particularly in urban areas where uncertainties associated with

environmental cleanup liability are a major factor in the underutilization and abandonment of contaminated properties. Port staff is concerned that proposed changes to the ABC Framework and Use and Scope of Method A, will unnecessarily encumber cleanup and redevelopment actions. As a consequence, fewer cleanups may actually occur.

We urge Ecology to implement changes to better integrate cleanup with redevelopment in future rule-making. For example, the American Society for Testing and Materials (ASTM) has developed a consensus-based standard for cleanup and redevelopment, which begins with a process of collaborative community engagement and planning. Employing this approach would require changing the existing technical orientation of Ecology under MTCA to a more integrated and collaborative approach. To that end, we support many of the recommendations made by the University of Washington in Linking Toxics Cleanup and Redevelopment Across the States: Lessons for Washington State (Publication no. 09-09-043A, February 2009, prepared for the Department of Ecology Toxics Cleanup Program). A number of benefits are associated with broadening the current focus of MTCA beyond a technical cleanup orientation, including the leveraging of other state and regional initiatives intended to encourage high-density, transit oriented urban development while discouraging sprawl and conversion of forest and agricultural land.

We are concerned that efforts to integrate Sediment Management Standards and the Model Toxics Control Act Rules will divert valuable resources (time, money, expertise, goodwill) from the actions that are truly required to protect and improve the health of Washington lakes, rivers and the Puget Sound. Further, Port staff fears efforts to integrate MTCA and the SMS would place too much emphasis on sediment management, while source control measures would receive too little attention. The Port is concerned that a more fragmented regulatory approach will lead to unintended consequences, including disincentives for necessary maintenance dredging in urban areas. This will likely lead to situations where sediments that have already been remediated by responsible parties will inevitably be re-contaminated by other sources of pollutants associated with urban stormwater. By integrating SMS and MTCA the final outcome would result in some sources of pollutants being overlooked. For example, significant improvements to the health of Lake Washington have been achieved in previous decades by targeting efforts on significant sources of water quality impairment (in this case, sewerage discharges). We believe future efforts to improve the health of Puget Sound can succeed with a similar focused effort.

Lastly, we note that most of the significant remediated sites near Commencement Bay and within Puget Sound are undergoing cleanup under MTCA. We believe that MTCA is well suited for addressing discrete upland sources of contamination, but poorly suited for addressing air and sediment contamination which are characterized by diffuse contaminant sources. We believe better results can be obtained by targeted changes to both SMS and MTCA based on what is actually not working rather than combining both programs.

Again, thank you for allowing the Port of Tacoma to comment on the proposed rule making process. We believe the key to a productive, informative and successful policy process is to have a robust and active stakeholder process, which the Port of Tacoma plans to be an active participant. Please contact me at 253-428-8659 or smauermann@portoftacoma.com if there are questions. Port staff looks forward to working with Ecology on the development of rule language.

Sincerely,

Sue Mauermann
Director, Environmental Programs
Port of Tacoma

C: RuleUpdate@ecy.wa.gov

P.O. Box 1837 • Tacoma, Washington 98401-1837 • Telephone: (253) 383-5841

From:	snyder
Date:	Friday, September 04, 2009 7:06:11 AM
Posted At:	TCP Rule Updates
Conversation:	CHMM
Subject:	CHMM

Ms. Martha Hankins
Washington State Department of Ecology
P.O. Box 47600
Lacey, WA 98504

Dear Ms Hankins,
I am on the Board of Directors for the Alliance for Hazardous Materials Professionals (AHMP) and writing in support of the initiative to recognize the CHMM credential along with equivalent professional certifications identified in WA state statutes.
CHMM stands for Certified Hazardous Material Manager.
The Alliance of Hazardous Materials Professionals™ (AHMP), formerly the Academy of Certified Hazardous Materials Managers, Inc. (ACHMM) is a professional association with a membership of more than 4,000 of the nation's leading experts in environmental, health, safety and security management. AHMP is the only national organization devoted to the professional advancement of the hazardous materials management field.
Our members are distributed across 56 chapters in 37 states plus the District of Columbia. In 2006, AHMP established its first international chapter in Bangalore, India.
AHMP is headquartered at the Federation of American Societies for Experimental Biology (FASEB) campus in Bethesda, Md., just outside Washington D.C.
AHMP envisions a world where the natural environment is unburdened by pollution; workers are exposed only to healthy and safe conditions; and hazardous materials are used and transported safely and efficiently. As it has for more than two decades, AHMP works to advance the field of hazardous materials management to make its vision a reality. Its core purpose is to foster a community of professionals and to jointly advocate for the public recognition of the value of the Certified Hazardous Material Manager® (CHMM®) credential and other EHS&S credentials the standards they represent and the professionals who uphold them.

Vision:

To be the recognized global leader and resource for hazardous materials professionals.

Mission:

To provide value to our members and other stakeholders by focusing on the key goal areas of:
• Advocating for our membership while enhancing government relations and public relations
• Strengthening communications among members and stakeholders
• Strengthening our membership and partnership base
• Improving management and governance operations and strengthening our financial base
• Providing superior educational resources and opportunities
• Serving our membership and chapters by providing new products, services and tools for success.

Our Strategy:

To achieve its mission, AHMP will work with its chapters, the Institute of Hazardous Materials Management (IHMM) and other professional organizations to link industry, government and academia, establishing its vision for the future.

Please visit our AHMP website or contact me directly if you would like more information.

Kind Regards

Daniel J Snyder, M.Ed, CSP, CHMM , CET, CHSP
Director At Large
Alliance for Hazardous Materials Professionals (AHMP)

snyder@safetyconsultants.org
417 773 3555 mobile
www.safetyconsultants.org

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From:	Cedric Calhoun
Date:	Friday, September 04, 2009 9:09:36 AM
Posted At:	TCP Rule Updates
Conversation:	AHMP Comments regarding MTCA Issue Summary Paper on Remedy Selection
Subject:	AHMP Comments regarding MTCA Issue Summary Paper on Remedy Selection
Attachments:	AHMP Support Document for MTCA Remedies20090904.doc

September 4, 2009

Ms. Martha Hankins
Washington State Department of Ecology
P.O. Box 47600
Lacey, WA 98504

Subject: Comments regarding MTCA Issue Summary Paper on Remedy Selection
Cost and Time Associated with Professional Certification.

Dear Ms. Hankins,

The Alliance of Hazardous Materials Professionals (AHMP) wishes to request that our proposal for reduction of time and costs associated with design, oversight and reporting associated with remedy selection and implementation be addressed in the Model Toxic Cleanup Act (MCTA) Issue Summary Paper on Remedy Selection. Specifically, we request that the Department of Ecology allow qualified environmental professionals with the Certified Hazardous Materials Manager (CHMM) credential to assume, along with qualified Registered Professional Engineers (PE), responsibility for remedy selection, oversight and document submittals under the MTCA regulations.

We believe our request, as briefly explained below, fits the category of "modest policy clarifications." We request that the following be added to Table 2 of the Issue Summary Paper on Remedy Selection:

Current Provision	Under Consideration	Comment
Remedy Selection Cost and Time: Only Professional Engineers (PEs) are recognized as able to design, oversee implementation, and submit reports associated with remedies, although many remedies do not require "engineered" designs. Other environmental professionals are equally or more qualified to assume these responsibilities, lowering cost and shortening schedules.	Should appropriate sections be amended to include competency criteria for additional professional credentials such as Certified Hazardous Materials Managers (CHMM) that demonstrate appropriate knowledge and expertise regarding remedy selection, oversight, and document submittals?	Other states have recognized that allowing certified environmental professionals, holding the CHMM credential for example, manage remedy selection, implementation oversight, and document submittals provides equivalent quality and protection of human health and the environment, often at lower cost and shorter schedule, as allowing PEs to fulfill the same roles.

AHMP's request to allow CHMMs in Washington State to assume responsibility for remedy selection, oversight and document submittals under the MTCA regulations is based on the reality that successful accomplishment of these tasks requires broad knowledge and experience in a variety of disciplines, including, environmental assessment, environmental and analytical chemistry, regulatory interpretation and compliance, hazardous materials safety, environmental remediation, and environmental management to list but a few. To become a CHMM, environmental management professionals must become proficient in all these areas and pass a rigorous examination to demonstrate competency. These requirements for knowledge and proficiency in a wide variety of environmental and hazardous materials disciplines specific to contaminated site management and environmental remediation exceed those required for PEs.

Many environmental response actions either do not require engineered remedies and construction drawings or rely on pre-engineered components, while others may require more detailed engineering designs. AHMP's request acknowledges the role and importance in the remedy design process of construction plans and drawings sealed by professional engineers, but encourages the Department of Ecology to understand that overall remedy selection, design, implementation monitoring, and reporting is a management role appropriate for qualified, certified, environmental professionals such as those holding the CHMM credential. Use of these professionals can reduce bias in remedy selection and result in more creative, cost effective, and faster remedy selection, implementation, and results. Other states, such as Missouri and New Jersey, already recognize the CHMM credential for management of contaminated site management and remediation projects. For more information, please review the following list of state programs which recognize the CHMM credential for environmental management: http://gachmm.pluggedintech.com/CHMMauthorities.htm.

Over 15,000 professionals have received the CHMM certification, and today there are over 190 CHMMs in the state of Washington. CHMMs must meet educational and experience requirements and pass a rigorous certifying examination. CHMMs are bound by a Code of Ethics and may have their certification revoked for violations of that Code. The Certified CHMM credential is accredited by the Council of Engineering and Scientific Specialty Boards (CESB) and it meets ASTM Standard E 1929-98 for Personnel Certification Programs. For more information about the CHMM program, please see the attached document.

We request that the Department of Ecology allow environmental professionals with either the CHMM credential or the Professional Engineer credential to assume responsibility in remedy selection, oversight, and document submittals associated with the MTCA regulations. Thank you for your consideration.

Sincerely,

AHMP Board of Directors

Harry S. Kemp, CHMM – President
Zehra Schneider-Graham, CHMM – Vice President
W. Scott Butterfield, CHMM – Treasurer
Elise Allen, CHMM – Secretary
Michael Mandracchia, CHMM – Immediate Past President
John Wolf, CHMM – Director

Michael Gordon, CHMM – Director
Dan Snyder, CHMM – Director
James Harless, CHMM – Director
Richie Spangler, CHMM – Director
Christopher Smith – Advisory Director
William MacMillan – Director Emeritus
Charles Bessey – Director Emeritus

The Alliance of Hazardous Materials Professionals™ (AHMP) formerly the Academy of Certified Hazardous Materials Managers, Inc. (AHMP) is a professional association of more than 4,000 of the nation's leading experts in environmental, health, safety and security (EHS&S) management. AHMP fosters the professional development of its members through educational programs, peer group interaction and networking opportunities.

Nearly all AHMP members have earned the Certified Hazardous Materials Manager® (CHMM®) credential while some also possess the Certified Industrial Hygienist (CIH), Certified Safety Professional (CSP), Certified Environmental, Safety and Health Trainer (CET), Certified Professional Environmental Auditor (CPEA), Professional Engineer (PE), Professional Geologist (PG) credentials or other professional designations. The CHMM credential is the recognized standard of excellence in the hazardous materials management community. It identifies professionals who possess superior knowledge and expertise in the management of hazardous materials as well as a commitment to technical excellence through continuing education, training and successful completion of a rigorous examination. Since it was established in 1984, more than 15,000 professionals have earned the CHMM credential and are active today in homeland security, environmental protection, engineering, transportation, public safety and many other critical hazardous materials management safety and security fields.

The breadth of their environmental responsibilities is diverse and contributes greatly to the safety and security of every man, woman and child in the United States every day. They work in critical areas such as air pollution control (28 percent), clean up and disposal of hazardous materials (57 percent), emergency planning and response (49 percent), environmental impact (24 percent), environmental compliance (66 percent), hazardous waste management
(67 percent), safety management (30 percent), waste minimization and pollution prevention (48 percent), water pollution control (28 percent) and many other interrelated fields.

Because of the critical role AHMP members have in our daily lives, many public and private entities recognize the expertise the CHMM credential represents and require that CHMM holders manage regulatory compliance, hazardous materials management, scientific and technical programs.

9650 Rockville Pike • Bethesda, MD 20814 • 800.437.0137 • 301.634.7430 • Fax 301.634.7431