Sediment Phthalates Work Group
Technical Committee Meeting
Regulations
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ATTENDEES

John O'Loughlin	City of Tacoma	joloughl@cityoftacoma.org
Kris Flint	EPA	flint.kris@epa.gov
Kathryn DeJesus	WA Dept. of Ecology	Kbco461@ecy.wa.gov
Jeff Stern	King County	Jeff.stern@metrokc.gov
Bruce Tiffany	King County	Bruce.tiffany@metrokc.gov
Pete Rude	City of Seattle	Pete.rude@seattle.gov
Seth Preston	WA Dept. of Ecology	spre461@ecy.wa.gov
Kate Snider	Floyd|Snider (facilitation)	kate.snider@floydsnider.com
Erin Murray	Floyd|Snider	erin.murray@floydsnider.com

This meeting summary was prepared by Erin Murray and Kate Snider. It is based on a transcription of the flip charts used during the meeting to document the discussion. Action items are identified in ***bold script***.

PURPOSE OF THE MEETING

The purpose of this meeting was to reach agreement on and document the key messages that are apparent from the material collected and reviewed regarding regulatory setting, to discuss the process for developing recommendation alternatives for Policy consideration, and to develop a comprehensive problem statement given the research completed to date.

REGULATORY SETTING

Regulations governing each of the media involved in the pathway of phthalates to sediments were discussed. Key messages were summarized, and include the following:

- The sediments phthalates contaminant pathway involves multiple media, including air, water, soil and sediment.
- Media-specific laws and regulations apply to each separately.
- Phthalates in different media have different risks and receptors
- Regulations for each media use different endpoints to evaluate risk in that particular medium.

- Most environmental laws and regulations establish goals for the protection of the environment and human health, but are not integrated into a coordinated regulatory system.
- Phthalates are not a site-specific problem, but are a non-point source concern.
- Product regulations are also pertinent.

Air

- Phthalates in air at concentrations needed to generate levels of concern in sediment do not trigger action regarding public health risk (levels not of concern for public health exposure).
- There is a narrative in the law regarding public health/welfare or environmental protection that could potentially be exercised in this segment of the contaminant pathway, but would need compelling rationale (e.g., CO_2 can be regulated under the Clean Air Act for environment health reasons; acid rain regulated under same reasoning)
- State Act is more clear and broader in rationale—plant/animal/environmental protection and economic effects.
- Regulatory authorities need to recognize the contribution of air to water pollution.
- Regulatory authorities need to understand the air to water pathway better to consider the idea of regulating air levels to protect water quality.

Soil and Groundwater

- CERCLA and the Model Toxics Control Act (MTCA) both recognize phthalates and can regulate their cleanup at contaminated sites.
- These regulations are reactive, or used to address contamination after it has occurred rather than prevent it and relevant to cleanup sites. They are not designed to control non-point sources, ubiquitous contaminants.
- Soil and groundwater regulations are not adequate to control contamination to the sediment pathway because they apply only to relatively small areas within the watershed. Phthalates are not a site-specific concern; they exist within the watershed as a whole.
- Phthalates in soil and groundwater at cleanup sites are not a significant source to the sediment pathway – air and surface water runoff are of much more significant concern.
- CERCLA and MTCA elements that require source control are relevant, and can be used to require source control actions for sediment sites. The requirement for permanent remedies will require source control components to adequately address phthalates.
- The issue of using joint and several liability requirements of CERCLA and MTCA to potentially engage product manufacturers should be investigated.

Water

- Water has the same issue as air in that water itself is not the problem. It is the transport mechanism (pathway) of phthalates to sediments.
- Phthalates do not pose a risk of concern currently recognized in water quality (i.e., not of concern for toxicity in organisms).
- Phthalate concentrations in surface water do not exceed numerical water quality criteria thresholds. Therefore, water quality criteria are not effective to protect sediment quality.
- Narrative standards regarding protection of aquatic life could be exercised in this segment of the contaminant pathway.
- However, State Clean Water Act and Water Quality Standards both require compliance with the Sediment Management Standards (SMS).
- SMS violations trigger 303d listings and potential source control actions (loading limits).

Clean Air and Clean Water Acts

- By current numerical standards, phthalates in air and water are not at levels that trigger concern.
- Narrative requirements — protection of the environment and aquatic species could potentially be used to control phthalates to sediments.
- The Clean Water Act (CWA) requires SMS compliance and has numerical and benthic effects criteria.
- Permit writers/regulators recognize links to sediment quality (and sometimes require sediment sampling) but current regulations don't provide mechanism to prevent eventual contamination to sediments via NPDES permits.
- We recognize that the CWA sets a goal that is unreachable in many situations with the current technology (not feasible to be reached — e.g., copper, etc., as well as phthalates). This must have been recognized when written. Relies on enforcement discretion.
- There are disconnects between regulations for different media (e.g., levels that are acceptable in air and water still can cause sediment effects because they accumulate and concentrate in the sediments). So sediment source control may require reliance on Clean Air Act provisions imposed on third parties.

Sediment

- Both MTCA and State CWA require compliance with SMS.
- The goal of the SMS regulation is to "reduce and ultimately eliminate adverse effects on biological resources and significant health threats to humans from surface sediment contamination."

- Phthalate contamination in sediments poses a greater concern to benthic organisms than to human health.

RECOMMENDATIONS—ALTERNATIVES FOR CONSIDERATION

Categories of Recommendations

When the technical committee develops recommendation alternatives for consideration by the Policy group, the following categories of recommendations will be addressed:

1. Studies/research (includes pilot studies) to fill data gaps and confirm key assumptions.
2. Near-term (5 year) coping mechanisms
3. Practical pathway control and regulatory measures — 5 to 20 year timeframe.
4. Grand-scale, long-term solutions

COMPREHENSIVE PROBLEM STATEMENT

Certain phthalates have accumulated in sediments at the end of urban stormwater outfalls. These phthalates, primarily DEHP and BBP, are plasticizers used in PVC throughout urban commercial and residential neighborhoods in numerous materials (e.g., vinyl flooring, shower curtains, etc.) and are very important to our economy.

Phthalates get to sediments because they off-gas into the atmosphere from phthalate containing materials. These products will continue to off-gas until they are brittle and most of the phthalate has been released. The vapor phase phthalates stick to fine particulates in the air and are then deposited throughout the watershed. If deposited on impervious surfaces, they are washed off in storm events from pavements, roofs, cars, and buildings into storm drains. Larger watersheds with more impervious surfaces contribute a larger mass of phthalates than smaller watersheds with less impervious surfaces. The phthalates can accumulate in the sediments where the storm drains empty into the receiving waters, particularly where the receiving water body is generally still and slow moving water.

When these phthalates are in the air and water (before reaching the sediments), they are not at concentrations that trigger regulatory concern due to human or environmental health. When they get to the sediments they don't migrate much. They can accumulate within a few years to levels that adversely affect the benthic organisms (such as worms, sand fleas, clams, etc.) at the bottom of the food chain that live in the sediments. Phthalates do not readily bioaccumulate, therefore, there is minimal risk to larger animals and human health (except for a very small population of subsistence seafood consumers—where the risk is still very low and much less than that of many other chemicals). Even so, Ecology sets numeric criteria under SMS (under the state Clean Water Act) to protect against effects to benthic organisms, because these effects are indicative of a change to the ecosystem.

It is important to note that this project is focusing on phthalates in sediments. Phthalates in cosmetics, medical apparatus, toys, etc. pose different health risks and are frequently different

types of phthalates as well. Those phthalates and risks associated with them are not related to phthalates in sediments and are outside this project's scope.

After sediment cleanups (typically for multiple chemicals) in quiescent aquatic environments with tributary urban watersheds, phthalates are reaccumulating within a few years to levels that exceed the SMS criteria.

Due to the way that phthalates get to sediments, they are virtually impossible to control. We can't stop them from off-gassing and being deposited on impervious surfaces because there are billions of pounds of plasticized PVC products currently out in the environment that will continue to off-gas until the products are brittle and no longer contain phthalates — this takes many years. A potential ban on use of phthalates in plasticized PVC products would be very difficult to implement, and would not have a significant effect within the next 20 to 30 years, due to the enormous existing reservoir of phthalates already out in the environment and the predominance of phthalate-containing imported products (which are difficult to control).

Phthalate loading to storm drains could potentially be reduced through effective removal of fine particulates or by increasing permeable surfaces within a watershed. However, given the scale of urban watersheds and airsheds, measures to remove phthalates would likely not be effective in preventing reaccumulation in sediments. These measures might lengthen the timeframe of reaccumulation but would not eliminate the problem.

There may be other ways to address the issue of phthalates in sediments; however it is a very complex problem. Proposed alternatives need to address the near-term dilemma, practical pathway and regulatory controls, and potential long-term change.

GRAPHICS TO ASSIST IN COMMUNICATING ALTERNATIVES AND ISSUES

- Pathway diagram of phthalates to sediments. Use figure different ways: pathways, exposures, regulations.
- Relative risk phthalate exposure from different sources (putting sediment risks in perspective)
- Relative risk of phthalate exposure relative to other chemicals?
- Illustrate products that contain plasticized PVC
- Regulatory flow chart (maybe illustrate on pathway diagram)?