



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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December 1, 2006

TO: Science Advisory Board Members

FROM: Dawn Hooper, ~~Toxics~~ Cleanup Program

SUBJECT: Materials for the December 11, 2006, Science Advisory Board (SAB) Meeting

Enclosed are the draft agenda and discussion materials for the December 11 MTCA SAB meeting. Here is a reminder of the meeting logistics:

December 11, 2006 (Monday)
9:00 am – 4:00 pm
University of Washington
Graham Visitor Center
2300 Arboretum Dr. E
Seattle, WA

There are three main meeting topics:

- **Annual Meeting:** Ecology conducts an annual Board meeting to review Board membership, upcoming issues that Ecology may bring forward for Board review and a review of the SAB Charter.
- **MTCA Rule Revision – Use of the TEFs for Dioxin and PAHs:** The Department has begun a rulemaking process to amend the Model Toxics Control Act (MTCA) Cleanup Regulation (Chapter 173-340 WAC). This rulemaking will clarify the policies and procedures for establishing cleanup levels for mixtures of polychlorinated dibenzo-p-dioxins/ polychlorinated dibenzofurans, polycyclic aromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs). At the September 15, 2006, meeting, Ecology provided an overview of the rulemaking and identified issues for the Board's review. At the October 23, 2006, meeting, the Board reached conclusions on the majority of the rulemaking issues identified by Ecology. Ecology has two main goals for the December 11 meeting:
 - **Confirm that Ecology has accurately recorded the Board's conclusions reached at the October 23 meeting.** The Board provided responses to the majority of rulemaking questions posed by Ecology. We have attached a summary of the Board's responses to this memorandum. We request that the Board review this summary to make sure that Ecology has accurately recorded the Board's conclusions and advice.



- **Obtain the Board's response to the question on bioavailability of soil-bound dioxins and furans:** One of the questions posed by Ecology related to the bioavailability of soil-bound dioxins and furans¹. At the October 23 meeting, the Board reviewed the issue paper on bioavailability prepared by Ecology. The Board reviewed this question and reached several conclusions:

- Based on available scientific information, it is reasonable to conclude that soil-bound dioxins and furans are less bioavailable than dioxins and furans in foods and drinking water.
- It is important to consider the absorption of dioxins and furans in soils relative to the amount of absorption in the toxicological studies that were used to establish the cancer slope factors and reference doses.
- Based on available scientific information, it is reasonable to assume that test animals absorbed 80% of the administered dose in the toxicological study used to establish the cancer slope factor for dioxins and furans.

However, the Board did not reach a conclusion on whether it was reasonable to use a 30% absorption value for soil-bound dioxins and furans. The Board requested that Ecology provide additional information on the designs of key studies (e.g. soil types, test methods, etc.), the range of soil types at Washington cleanup sites and the range of factors that might influence inter- or intra-individual variability in absorption rates.

Ecology has prepared additional materials to support the Board's review of this issue. Those materials are attached to this memorandum. We request that the Board review these materials. If you have questions prior to the meeting, please contact Dr. Craig McCormack (360/407-7193).

- **Status on Establishing Moderate Levels of Arsenic in Soils:** The SAB has discussed this issue at several meetings over the last two and half years. At the October 23 meeting, Mr. Eric Weber (Landau Associates) reviewed the results of his review of information related to the potential migration of arsenic and lead from surface soils to underlying ground water. During that discussion, the Board raised several questions related to this issue. Subsequent to the October 23 meeting, Ecology has worked with Landau Associates to address the Board's questions. Ecology's goal for the December 11 meeting is to obtain the Board's response to the following four questions:
 - Does the Science Advisory Board agree that it is scientifically defensible to conclude that surface soil lead concentrations below 1000 mg/kg are unlikely to pose a significant threat to ground water?
 - Does the Science Advisory Board agree that it is scientifically defensible to conclude that surface soil arsenic concentrations below 200 mg/kg are unlikely to pose a significant threat to ground water?

¹ Ecology is considering establishing a default gastrointestinal absorption factor for dioxin/furan mixtures equal to 0.4. Is this default value consistent with current scientific information?

- Are there circumstances (e.g. particular soil types, presence of other substances, etc.) where the Board believes additional steps should be taken to evaluate the potential for lead (concentrations < 1000 mg/kg) or arsenic (concentrations < 200 mg/kg) to migrate from surface soils to underlying ground waters?
- Given the evaluation results, where does the Board recommend that Ecology focus additional information collection efforts?

To facilitate the Board's discussion, Ecology plans to organize the discussion into four main parts: (1) background information providing the regulatory or risk management context for the four questions; (2) summary of the information in the September 14 Technical Memorandum prepared by Landau Associates; (3) describe the additional information compiled by Landau in response to the questions posed by the Board at the October 23 meeting; and (4) final discussion of the four questions.

We look forward to meeting with you again. If you have questions prior to the meeting, please contact Dawn Hooper (360/407-7182), Pete Kmet (360/407-7199) or Dave Bradley (360/407-6907).

DB:am
Attachments

Annual Meeting

- Charter

Regular Meeting

Meeting Summary October 2006

MTCA Rule Amendment

- Relative Bioavailability of Dioxin/Furan Mixtures in Soils (Ingestion Pathway)
- December 2006: Science Advisory Board Review of Issues Related to Mixtures of Dioxins/Furans, Polycyclic Aromatic Hydrocarbons & Polychlorinated Biphenyls