OEHHA Discussion Questions for Green Ribbon Science Panel (GRSP) Meeting

Agenda Item: OEHHA Pilot Scientist Questionnaire

January 28-29, 2010

Background

In 2008, the California State Legislature approved Senate Bill 509 which requires the Department of Toxic Substances Control (DTSC) to establish the Toxics Information Clearinghouse. The primary purpose of the Clearinghouse is to collect, maintain, and distribute chemical hazard information via a publicly accessible web-based portal. The legislation requires the Office of Environmental Health Hazard Assessment (OEHHA) to evaluate and specify the hazard traits, toxicological and environmental end-points and any other relevant data to be included in the Clearinghouse.

As part of OEHHA's consultation effort under SB 509, we are administering a questionnaire to experts in chemical hazard identification and other scientists who are interested in the implementation of the California Green Chemistry Initiative. The draft pilot questionnaire is attached. We also propose a hazard trait taxonomy below. We look forward to the GRSP's comments on the questionnaire and the proposed taxonomy.

Proposed Hazard Trait Taxonomy

The term "hazard trait" is used broadly to include: general types of human health toxicity, environmental effects (including ecotoxicity) and exposure properties; specific toxicological and environmental endpoints and exposure potential parameters; and indicators for all of these. The proposed hazard trait taxonomy can be represented as a tiered system:

Hazard Traits

- General types of human health toxicity, environmental effects (including ecotoxicity) and exposure properties
- Toxicological and environmental endpoints and exposure potential parameters
- Indicators for toxicity, environmental effects and exposure potential

The highest tier represents general categories of adverse human health and environmental effects such as carcinogenicity, neurotoxicity, endocrine disruption, aquatic toxicity, species loss and climate change. This tier also includes general exposure properties such as persistence and bioaccumulation, which can be used to understand the likelihood of significant exposures to a chemical.

Toxicological endpoints are specific adverse human health outcomes (e.g., lung cancer, bronchiolitis obliterans, growth retardation). Environmental endpoints include specific ecotoxic and environmental effects (e.g., feminization in a fish population, impaired timber growth). Exposure potential parameters, such as half-life in sea water, can be the basis for identifying a general exposure property like persistence.

"Indicators" are predictors for human health toxicity, environmental effects and exposure potential. In some cases, indicators may predict specific toxicological or environmental endpoints or exposure potential parameters, but are more commonly useful for general predictions. For example, a chemical may test strongly positive in an *in vitro* genotoxicity battery, indicating its potential to cause cancer, but the site or type of cancer may be difficult to predict. Indicators for exposure potential could include physical and chemical properties such as vapor pressure and log K_{ow} (log octanol-water partition coefficient).

The hazard trait tiers can overlap. For example, certain general toxicity types (e.g., genotoxicity) might also be considered indicators for other types (e.g., carcinogenicity).

Please refer to the attached draft questionnaire for examples.

Discussion questions

1. Is the proposed hazard trait taxonomy clear? Do you have comments?
2. Do you have any comments on the draft questionnaire? Do you recommend deleting any of the questions or adding questions?
3. What do you consider the highest priority general types of human health toxicity and environmental effects for inclusion in the Clearinghouse?
4. What do you consider the highest priority exposure properties for inclusion in the Clearinghouse?

Follow up

After incorporating GRSP input, we will send the revised scientist questionnaire to all panelists. We invite any GRSP member to provide responses to the revised questionnaire in writing and to participate in a follow up telephone interview with OEHHA staff if needed. Please contact Sara Hoover (shoover@oehha.ca.gov) or Gail Krowech (gkrowech@oehha.ca.gov) if you are interested in participating or can recommend other expert scientists.