



Development and Use of TRVs in Wildlife ERA Expert Panel Recommendations

UBC Risk Symposium

June 1, 2007



Background

- SETAC Montreal (November 2006)
- ERA Advisory Group – two new subcommittees:
 - Wildlife Toxicity Reference Values (TRVs)
 - Spatially-explicit exposure modeling
- TRV meeting sponsored by MoE was held May 1-2, 2007



TRV Meeting – Participants and Observers

- Patrick Allard (Azimuth)
- Colm Condon (MoE)
- Anne Fairbrother (US EPA)
- Bruce Hope (Oregon Dept. Environmental Quality)
- Ruth Hull (Intrinsik)
- Mark Johnson (US Army)
- Larry Kapustka (Golder)
- Gary Mann (Azimuth)
- Blair McDonald (Golder)
- Remi Odense (MoE)
- Brad Sample (CH2M Hill)



TRV Meeting – Goals

1. Review methods in current use; understand why they were developed (i.e., their intended use), and the strengths and weaknesses of each approach.
2. Identify desirable characteristics of a TRV related to an intended use (e.g., for setting soil quality standards, in screening-level ERAs, in detailed/complex ERAs).
3. Consider the best use of available avian and mammalian toxicity data.



TRV Meeting – Goals

4. Discuss methods for addressing uncertainty in the TRV.
5. Begin the process for recommending a clear, concise direction for the development and use of TRVs in wildlife ERA.

Recommendations (Don'ts)

- Do not extrapolate toxicity data between classes (e.g., mammals to birds) when deriving TRVs for chronic exposures.
- Do not use allometric dose-scaling using body mass when assessing chronic toxicity between species.
- Do not extrapolate chronic TRVs from acute data.
- Do not assume all TRVs will be protective for all species within a class of vertebrates.
- Do not limit toxic endpoints to mortality, reproduction and growth.
- Do not apply uncertainty factors for inter-species extrapolation without scientific justification.
- Do not use NOAELs or LOAELs unless no data are available to generate dose-response curves and ED_x.
- Do not assume that HQs are anything but a binary metric, hence Hazard Indices should not be calculated.



Recommendations (Do's)

- Allometric scaling is proper in estimating exposure (e.g. food ingestion rates).
- Provide all supporting information involved in the corroboration of the data used in TRV derivation.
- Consider relative sensitivity of species, when conducting inter-species extrapolation.
- Use “confidence qualifiers” for data sets and subsequent TRVs.
- Use dose-response relationships when possible.
- Use ED_x values or distributions.
- Link the TRVs to the assessment endpoints (and Problem Formulation).
- Use HQs only to screen out chemical of potential concern/receptor combinations, rather than imply magnitude of effect.
- Consider dosing method, dose vehicle and chemical form when extrapolating data.
- Understand differences/similarities in test organisms and receptor of concern.
- Explicitly represent uncertainty and confidence.
- Be transparent with all data, calculations and assumptions.

Next Steps

- Group seeking critical review of the recommendations to develop broader consensus.
- SETAC Milwaukee (November 2007)
 - Interactive poster session
- Publication (In prep.)