Responses to Major Comments on Technical Support Document

Public Health Goal
For
Benzo(a)pyrene
In Drinking Water

Prepared by

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INTRODUCTION

The following are the combined responses to major comments received by the Office of Environmental Health Hazard Assessment (OEHHA) on the proposed public health goal (PHG) technical support document for benzo(a)pyrene, based on the pre-release review drafts. Changes have already been made in response to these comments, and have been incorporated into the final version posted on the OEHHA website. For the sake of brevity, we have selected the more important or representative comments for responses. Comments appear in quotation marks where they are directly quoted from the submission; paraphrased comments are in italics.

These comments and responses are provided in the spirit of the open dialogue among scientists that is part of the process under Health and Safety Code Section 57003. For further information about the PHG process or to obtain copies of PHG documents, visit the OEHHA Web site at www.oehha.ca.gov. OEHHA may also be contacted at:

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RESPONSES TO MAJOR COMMENTS RECEIVED

Comments from Craig McCormack, Department of Ecology, State of Washington

Comment 1. "The Department of Ecology is in the process of updating the Model Toxics Control Act Cleanup Regulation consistent with new science and new federal and state regulatory policies and procedures. Based, in part, on the robust analysis conducted by the Reproductive and Cancer Hazard Assessment Branch, OEHHA (*In Utero* and Early Life Susceptibility to Carcinogens: The Derivation of Age-at-exposure Sensitivity Measure, May 2009), the Department of Ecology is considering applying early-life exposure age adjustments for carcinogens that operate via a non-mutagenic and mutagenic mode of action. The recently published Review DRAFT document Public Health Goal for Benzo[a]pyrene in Drinking Water, dated November 2009 states, Page 48: "No sensitive populations were identified. OEHHA believes that pregnant women and their fetuses, infants, the elderly, and other potentially sensitive populations are adequately protected by the proposed PHG." This statement appears to be in sharp contrast to both California State and U.S. Environmental Protection Agency guidance regarding the application of early-life exposure Age Sensitivity Factors, Age Dependent Adjustment Factors, to account for early-in-life exposures compared to adult exposures to carcinogens. Given the robust analysis conducted by OEHHA, federal U.S. EPA guidance on early-life exposures, and the multiple reasons to apply Age Sensitivity Factors for mutagenic and non-mutagenic carcinogens discussed in *In Utero* and Early Life Susceptibility to Carcinogens, I cannot find any rationale why the Public Health Goal for Benzo[a]pyrene in Drinking Water should ignore applying early-life exposure Age Sensitivity Factors to develop a protective drinking water level for benzo[a]pyrene.

In view of the California and federal regulatory policies and procedures to apply early-in-life exposures age adjustments to carcinogens in general and benzo[a]pyrene in particular, would you please explain to me why OEHHA decided not to consider early-in-life exposures when developing the Public Health Goal for Benzo[a]pyrene in Drinking Water?

Response: 1. No information was located that specifically identified a particular sensitive population that would impacted by exposure to B(a)P. The evidence that early-life stages may be more sensitive to carcinogens, the basis of Age Sensitivity Factors (ASF), was obtained from studies of other chemicals. That said, OEHHA (2009) has indicated that ASFs will generally be applied when deriving a potency estimate for carcinogens, "We intend to apply this weighting factor to all carcinogens, regardless of purported mechanism of action, unless chemical-specific data exist to the contrary." The B(a)P risk assessment was prepared before this decision was published, and our general approach has been not to redo all risk assessments in progress to meet this new objective. However, for the case of B(a)P there appears to be no reason not to introduce this methodological update for the final publication of the PHG. Therefore the cancer potency for B(a)P and the PHG calculation have been modified to incorporate this consideration of early-life exposures into the B(a)P document.

REFERENCES

OEHHA (2009). Air Toxics Hot Spots Risk Assessment Guidelines Part II: Technical Support Document for Cancer Potency Factors" (May 2009). Accessed at: http://www.oehha.ca.gov/air/hot_spots/tsd052909.html.