

**Responses to Major Comments on the
Technical Support Document**

**Public Health Goal
For
1,2-Dichloropropane
In Drinking Water**

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INTRODUCTION

The following are 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 1,2-dichloropropane as discussed at the PHG workshop held on October 6, 1998, or as revised following the workshop. Some commenters provided comments on both the first and second drafts. 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.org. OEHHA may also be contacted at:

Office of Environmental Health Hazard Assessment
301 Capitol Mall, Room 205
Sacramento, California 95814
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RESPONSES TO MAJOR COMMENTS RECEIVED

U.S. EPA

Comment 1: “This is a well written document and it provides all relevant technical information.”

Response 1: Thank you for the comment. No response needed.

Comment 2: “U.S. EPA has classified 1,2-dichloropropane (1,2-DCP) as a group B2 carcinogen based on the results of the NTP (1986) bioassay and EPA’s carcinogenicity guidelines, 1986. California Office of Environmental Health Hazard Assessment (OEHHA) agrees with the carcinogenic assessment of 1,2-DCP with EPA except that OEHHA has used the EPA’s proposed cancer guidelines of 1996, and the proposed health goal (PHG) of 0.5 ppb at 10^{-6} was calculated based on the carcinogenic potency of 1,2-DCP. In calculating the PHG, a *de minimus* theoretical excess individual cancer risk of 10^{-6} was assumed. The corresponding values for cancer risk levels of 10^{-5} or 10^{-4} are 5 and 50 ppb, respectively.”

Response 2: No response needed.

Comment 3: Referring to the PHG calculation based on noncarcinogenic effects, “Page 17, para 1, Kirk et al. (1990) drinking water study conducted in rats over two generations is used to derive an RfD for noncarcinogenic effect in rats. In this study, 1,2-DCP in drinking water was associated with **decreased water palatability resulting in significant dose-related decrease in body weight**. This document did not consider whether the decreased palatability of water from 1,2-DCP was due to taste and odor, and thereby, rats did not consume sufficient amount of water. This could have attributed to decreased body weight changes.”

Response 3: It is true, the decreased water palatability may have been due to taste and odor as opposed to a toxic effect induced by 1,2-DCP. In the initial draft document, we did consider this issue and decided that for the purposes of setting a drinking water standard that it did not matter why there was decreased water intake; the end result was *decreased body weight*, which was identified as the most sensitive endpoint. We have now reconsidered this point and have concluded that since the decreased body weight was due to palatability, it is not suitable for the PHG calculation for the noncancer endpoint. This calculation is now based on mammary gland hyperplasia reported in NTP (1986). The revision results in a lower reference level for noncancer health effects (from 2,350 ppb to 630 ppb). However, since the PHG of 0.5 ppb is based on the carcinogenic endpoint of 1,2-DCP, the revised calculation does not affect the PHG.

Comment 4: Referring to the PHG calculation based on noncarcinogenic effects, “...relative source contribution (RSC) is set at 40% instead of more commonly used default value of 20%, and the total water intake is given as 4 L/day. Rationale given is that “net exposures to VOCs could also be higher than estimated using the default of 2 L/day for consumption, due to inhalation of vapors and dermal exposure during showering/bathing.” This is not consistent because inhalation is not a route of ingestion exposure and dermal absorption could not amount to an additional 2L/day (i.e. 4L/day) and a 40% RSC.

You need to explain better than it is given in the text on page 17. (Even though it is mentioned that a PHG of 0.5 ppb (based on cancer effect) for 1,2-DCP in drinking water is considered to contain an adequate margin of safety to protect against potential noncancer adverse effects).”

Response 4: In setting PHGs, we must estimate exposures to chemicals from drinking water. The default value of 2 L/day represents the amount of water an adult drinks per day. For non-volatile compounds, this value adequately estimates exposures from drinking water. However, ingestion of drinking water is not the only route of exposure to VOCs from water. One can also be exposed to VOCs in water from the inhalation of vapors while showering and bathing, as well as from other household uses of tap water. Therefore, we feel that the standard default value for water consumption is not adequate for estimating exposures from VOCs in drinking water. U.S. EPA has suggested that for showering exposure only (and not other home exposures) inhalation and dermal uptake are equal to ingestion. Based on this, we used an exposure estimate for water intake in the PHG calculation of 4 liter equivalents per day (i.e., 2 L/day from drinking water plus 2 Leq/day from showering/bathing = 4 Leq/day total).

For the relative source contribution (RSC), default values of 20%, 40% or 80% are used. Specifically, 20% is used if we know that there are non-water sources of the chemical but exposures are not well characterized, 40% is used for highly volatile compounds that are not expected to be found in food, and 80% is used if the chemical is primarily waterborne. Based on this, we used an RSC of 40% for 1,2-DCP.

Dow AgroSciences

Comment 1: Dow AgroSciences produces 1,3-dichloropropene (1,3-D) which is the active ingredient in several products sold by us to control pests in agronomic crops. Currently in the production of 1,3-D there is a trace impurity. This trace impurity is 1,2-Dichloropropane. The current maximum amount of 1,2-Dichloropropane found in 1,3-D is not greater than 100 ppm (0.01%). Our goal through ongoing improvements in manufacturing is to continue to see this small number decreases over time.

Response 1: Thank you for the comment.