

## INFORMATION ON DRINKING WATER STANDARDS AND GUIDANCE VALUES

### Background Information

There are numerous pesticides currently regulated in drinking water either by the U.S. EPA Office of Groundwater and Drinking Water or by the State Water Resources Control Board Division of Drinking Water (State Division of Drinking Water) (<http://water.epa.gov/drink/contaminants/index.cfm> and [http://www.waterboards.ca.gov/drinking\\_water/certlic/drinkingwater/Chemicalcontaminants.shtml](http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Chemicalcontaminants.shtml)). Note that California has its own primary and secondary drinking water standards for some constituents and that in California, both primary and secondary Maximum Contaminant Levels are enforceable.

### Enforceable California Drinking Water Standards

In California, drinking water standards include primary and secondary Maximum Contaminant Levels (MCLs), which are legally enforceable drinking water standards. Primary MCLs are set as close to the Public Health Goal (PHG) or Maximum Contaminant Level Goal (MCLG) for a constituent as is economically and technologically feasible, accounting for considerations like treatment costs and chemical analysis methods for measuring compliance.

Both PHGs and MCLGs are non-enforceable public health goals that are based solely on chemical hazards. PHGs are established by CalEPA's Office of Environmental Health Hazard Assessment (OEHHA). They are concentrations of drinking water contaminants that pose no significant health risk if consumed for a lifetime, based on current risk assessment principles, practices, and methods. OEHHA establishes PHGs pursuant to Health & Safety Code §116365(c) for contaminants with MCLs, and for those for which MCLs will be adopted. MCLGs are established by the USEPA for constituents with a federal MCL. They are the level of a contaminant in drinking water below which there is no known or expected risk to health, with consideration for sensitive subpopulations, a variety of health endpoints, and allowing for a margin of safety. These numbers represent no risk to human health and are most conservative; for example, MCLGs for carcinogens are zero.

Secondary MCLs, which are legally enforceable in California, are established to protect the odor, taste, and appearance of drinking water.

In addition to primary and secondary MCLs, the State Division of Drinking Water has developed Notification Levels for additional constituents of interest (Department of Public Health [DPH] 2012). These are health based levels that require action by the water utility, ranging from public notification to treatment, if found above the Notification Levels. Similar action is required for a related set of values known as "Archived Advisory Levels" (DPH 2012).

### Drinking Water Guidance Values

The U.S. EPA Office of Water Office of Science and Technology has developed Health Advisories (HAs) for other constituents in drinking water that are not currently federally regulated (some of these have a California MCL). These are non-enforceable levels which can provide guidance to water systems on the potential risk to public health. U.S.

EPA has conveniently compiled Federal drinking water standards, including health advisories, into a reference handbook (U.S. EPA 2012). The reference handbook includes acute and chronic risk for non-cancer and cancer health effects.

For those pesticides without federal drinking water standards or Health Advisories, U.S. EPA Office of Pesticide Programs has developed Human Health Benchmarks for Pesticides (HHBPs) for use by the states in water quality management. HHBPs are developed with the same methods used to develop Health Advisories. These values, which are periodically updated, are available on the Internet (U.S. EPA 2013). U.S. EPA recently started development of cancer risk benchmarks, the first of which were published in August 2013.

A Health Advisory or an HHBP is available for nearly every commonly used agricultural pesticide that does not have an enforceable federal drinking water standard. U.S. EPA has made a practice of developing HHBPs when new pesticide chemicals are registered and has been responsive to requests from states to develop additional HHBPs for pesticides and degradates that could potentially be found in drinking water.

### **Potential for Additional Future Drinking Water Standards**

Drinking water standards are not static. The U.S. EPA Office of Groundwater and Drinking Water has several programs in place to review the current drinking water standards (called the Six Year Review) as well as identify new constituents which may require a new drinking water standard (the Contaminant Candidate List). Another USEPA program, from the Office of Science Coordination and Policy, which may affect drinking water standards is the Endocrine Disrupters Screening Program, which is evaluating chemicals for potential non-cancer impacts to the endocrine system. This program could potentially lead to new or revised primary drinking water standards if they are determined to be of human health concern.

### **Additional Information**

The Lifetime HAs and Chronic or Lifetime HHBPs assume a relative contribution of 20% from drinking water. The HA Table includes the chronic risk level, as well as the Drinking Water Equivalent Levels (DWELs), which are 5 times higher than the Lifetime HAs. A DWEL is a drinking water lifetime exposure level, assuming 100% exposure from that medium, at which adverse, non-carcinogenic health effects would not be expected to occur. The HHBP table does not include DWELs.

The information above is practical for prioritization of pesticides for monitoring, especially in consideration of the need to concurrently prioritize pesticides for monitoring for aquatic life protection. If pesticides of potential human health risk are detected, it is recommended to consult with the State Division of Drinking Water; if the pesticides are carcinogens or potential carcinogens, the State Division of Drinking Water and possibly other agencies like US EPA Office of Ground Water and Drinking Water and OEHHA should be consulted to determine the appropriate cancer risk levels to be utilized in evaluations.