

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
POLICY ON USE OF HUMAN HEALTH TOXICITY VALUES IN
ENVIRONMENTAL RISK ASSESSMENT AND REMEDIATION MANAGEMENT

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The Colorado Department of Public Health and Environment uses toxicity information in several different ways in environmental assessment and decision-making. It is used to develop proposals for regulatory standards, such as water quality standards or listing as a hazardous waste; to evaluate whether public health response is required; to establish protective cleanup levels in the absence of specific statutory or regulatory requirements; as well as to evaluate the protectiveness of proposed response actions. While the Department has used toxicological information in these situations for decades, there has not been a written policy that defines our approach for interested parties.

In making decisions about response actions, the first source of direction is promulgated statutory or regulatory standards. Where such standards do not exist, the risk manager will evaluate the risk, relying on, among other relevant factors, a review of data regarding the toxicity of the contaminants involved.

The Department is not in a position to independently review all of the toxicology data on every contaminant that is encountered in Colorado. Therefore, the Department adopts and will use the basic approach set out in the United States Environmental Protection Agency (EPA) Office of Solid Waste and Emergency Response (OSWER) Directive 9285.7-53, dated December 5, 2003. This represents EPA's most recent policy position.

The directive updates and provides guidance on the sources of toxicity information that should be used in performing human health risk assessments. The Department follows the EPA hierarchy by looking to the following sources of information on toxicology:

Tier 1: The Integrated Risk Information System (IRIS)

OSWER notes that "IRIS normally represents the official Agency scientific position regarding the toxicity of the chemicals based on the data available at the time of the review."

Tier 2: EPA's Provisional Peer Reviewed Toxicity Values (PPRTVs)

Tier 3: Other Toxicity Values

As noted in EPA's guidance, tier 3 includes both additional EPA and non-EPA sources of toxicity information. Priority should be given to those sources of information that are the most current, the basis for which is transparent and publicly available, and which have been peer reviewed. The guidance specifically notes that among the sources for such information are: Cal EPA, the Agency for Toxic Substances and Disease Registry (ATSDR), and the EPA Health Effects Assessment Summary Tables (HEAST) toxicity values.

When will the Department use toxicity values other than those posted in IRIS?

The Department will generally use the above hierarchy. In some common situations we have encountered, the Department will proceed as follows:

Where there is currently no posted IRIS value, the Department will, of necessity, evaluate information using the above hierarchy to develop toxicity values until one is posted in IRIS.

Where there is a value in IRIS, the Department generally will not undertake an independent evaluation unless there is information from other credible sources that indicates that the IRIS value may not be adequately protective and there is or may be human exposure in Colorado.

Where there is an on-going toxicity evaluation by EPA of a value that is posted in IRIS, the Department generally will rely on that IRIS value for environmental management decisions until the evaluation is concluded, unless there is a more protective value recommended by a reputable scientific source that the Department determines should be utilized to assure protection of public health.

Remediation Risk Management

Recognizing that there may be credible information outside IRIS that may indicate the IRIS value is either overly conservative or insufficiently conservative, the Department will consider credible non-IRIS information in making remediation decisions. In the face of uncertainty regarding such evaluations, the Department will strive to assure adequate protection of public health.

Toxicity values are not sufficient in and of themselves to make risk management decisions. Among the many factors that influence risk management are:

- Exposure pathways
- Whether there are actual or potential receptors, and their sensitivity
- The nature and extent of the contamination
- The duration of potential exposure to the contamination
- Uncertainties in the toxicity information
- Analytical detection limits
- Background concentrations
- Cost benefit of various management alternatives that are protective of public health.

It is the responsibility of the Department's risk managers to consider all of the above information in making decisions that are protective of human health and the environment. The Department's decisions will analyze the factors that influence its risk management determination.