Appendix A—Glossary

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Absorption
How a chemical enters a person's blood after the chemical has been swallowed, has come into contact with the skin, or has been breathed in.

Adverse Health Effect
A change in body function or the structures of cells that can lead to disease or health problems.

ATSDR
The Agency for Toxic Substances and Disease Registry. ATSDR is a federal health agency in Atlanta, Georgia that deals with hazardous substance and waste site issues. ATSDR gives people information about harmful chemicals in their environment and tells people how to protect themselves from coming into contact with chemicals.

Background Level
An average or expected amount of a chemical in a specific environment; Or, amounts of chemicals that occur naturally in a specific environment.

California Action Level
Published by CDHS's Drinking Water and Environmental Management Division, action levels are advisory not regulatory levels for water suppliers. Action levels take into account noncancer and cancer risks.

Cancer Risk
The potential for exposure to a contaminant to cause cancer in an individual or population is evaluated by estimating the probability of an individual developing cancer over a lifetime as the result of the exposure. This approach is based on the assumption that there are no absolutely "safe" toxicity values for carcinogens. EPA and OEHHA have developed cancer slope factors for many carcinogens. A slope factor is an estimate of a chemical's carcinogenic potency, or potential, for causing cancer.

If adequate information about the level of exposure, frequency of exposure, and length of exposure to a particular carcinogen is available, an estimate of excess cancer risk associated with the exposure can be calculated using the slope factor for that carcinogen. Specifically, to obtain risk estimates, the estimated, chronic exposure dose (which is averaged over a lifetime or 70 years) is multiplied by the slope factor for that carcinogen.

Cancer risk is the likelihood or chance of getting cancer. We say "excess cancer risk" because we have a "background risk" of about one-in-four chances of getting cancer. In other words, in 1 million people, it is expected that 250,000 individuals would get cancer from a variety of causes. If we say that there is a "one-in-a-million" excess cancer risk from a given exposure to a contaminant, we mean that if 1 million people are exposed to a carcinogen at a certain concentration over their lifetime, then one cancer above the background chance, or the 250,001th cancer, may appear in those 1 million persons from that particular exposure. In order to take into account the uncertainties in the science, the risk numbers used are plausible upper limits of the actual risk based on conservative assumptions. In actuality, the risk is probably somewhat lower than calculated, and, in fact, may be zero.

Cancer Risk Evaluation Guide (CREG)
Carcinogenic chemicals are selected for follow-up by comparing the levels to the CREG. CREGs are derived from U.S. EPA's cancer slope factors. Cancer slope factors give an indication of the relative carcinogenic potency of a particular chemical. CREG values represent media concentrations which are thought to be associated with an extra lifetime cancer risk of one-in-a-million.

CERCLA
See Comprehensive Environmental Response, Compensation, and Liability Act.

Chronic Exposure
A contact with a substance or chemical that happens over a long period of time. ATSDR considers exposures of more than one year to be chronic.

Completed Exposure Pathway
See Exposure Pathway.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
CERCLA was put into place in 1980. It is also known as Superfund. This act concerns releases of hazardous substances into the environment, and the cleanup of these substances and hazardous waste sites. ATSDR was created by this act and is responsible for assessing health issues related to hazardous waste sites.

Concern
A belief or worry that chemicals in the environment might cause harm to people.

Concentration
How much or the amount of a substance present in a certain amount of soil, water, air, or food.

Contaminant
See Environmental Contaminant.

Dermal Contact
A chemical getting onto your skin (see Route of Exposure).

Dose
The amount of a substance to which a person may be exposed, usually on a daily basis. Dose is often explained as "amount of substance(s) per body weight per day".

Duration
The amount of time (days, months, years) that a person is exposed to a chemical.

Environmental Contaminant
A substance (chemical) that gets into a system (person, animal, or the environment) in amounts

higher than that found in Background Level, or what would be expected.

Environmental Media
Usually refers to the air, water, and soil in which chemicals of interest are found. Sometimes refers to the plants and animals that are eaten by humans. Environmental media is the second part of an Exposure Pathway.

Environmental Media Evaluation Guide (EMEG)
EMEGs are media-specific values developed by ATSDR to serve as an aid in selecting environmental contaminants that need to be further evaluated for potential health impacts. EMEGs are based on non-carcinogenic health results and do not consider carcinogenic effects. EMEGs are based on the MRLs.

Exposure
Coming into contact with a chemical substance. (For the three ways people can come in contact with substances, see Route of Exposure.)

Exposure Assessment
The process of finding ways people come into contact with chemicals, how often and how long they come in contact with chemicals, and the amounts of chemicals with which they come in contact.

Exposure Pathway
A description of the way that a chemical moves from its source (where it began) to where and how people can come into contact with (or get exposed to) the chemical.

ATSDR defines an exposure pathway as having five parts:
1. Source of Contamination
2. Environmental Media and Transport Mechanism
3. Point of Exposure
4. Route of Exposure
5. Receptor Population

When all five parts of an exposure pathway are present, it is called a Completed Exposure Pathway

Frequency
How often a person is exposed to a chemical over time—for example, every day, once a week, and twice a month.

Hazardous Waste
Substances that have been released or thrown away into the environment and, under certain conditions, could be harmful to people who come into contact with them.

Hazard Index for an Exposure Pathway
The hazard index for an exposure pathway is the sum of the hazard quotients for the individual chemicals. The hazard quotient for a chemical is the ratio of the estimated exposure dose to the

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Minimal Risk Level (MRL) or the Reference Dose (RfD). If the hazard index is greater than one, then there is a potential for adverse health effects from the combined exposure to the chemicals. If the hazard quotient is less than one then no adverse health effects would be expected based on additivity of toxicity.

Health Effect
ATSDR deals only with Adverse Health Effects (see definition in this Glossary).

Indeterminate Public Health Hazard
This category is used in ATSDR's PHA documents for sites that have certain physical features or evidence of short-term (less than 1 year), site-related chemical exposure that could result in adverse health effects and require quick intervention to stop people from being exposed.

Ingestion
Swallowing something, as in eating or drinking. It is a way a chemical can enter your body (See Route of Exposure).

Inhalation
Breathing. It is a way a chemical can enter your body (See Route of Exposure).

Leachate
Liquid that forms when water has contact with refuse.

"Leachate"
Liquid that results from VOCs, produced within the refuse, dissolving into rainwater at the bottom edges of the cap. The MCSWMD and NCRWQCB have referred to this liquid as leachate. Since it is not leachate in that it is liquid that has contact with the refuse, CDHS will not refer to it as leachate, instead we give it the term "leachate".

LOAEL
Lowest Observed Adverse Effect Level. The lowest dose of a chemical in a study, or group of studies, that has caused harmful health effects in people or animals.

Maximum Contaminant Level (MCL)
U.S. EPA and the State of California have issued drinking water standards, or MCLs, for contaminants in drinking water. The MCLs are set according to known or anticipated adverse human health effects (which also account for sensitive subgroups, such as children, pregnant women, the elderly, etc.), the ability of various technologies to remove the contaminant, their effectiveness, and cost of treatment. The MCLs can change as new technologies are developed and as new scientific knowledge are attained. For cancer risk, the MCLs are set at levels that will limit an individual risk of cancer from a contaminant to between 1 in 10,000 (low increased excess risk) to 1 in 1,000,000 (no apparent increased excess risk) over a lifetime. As for noncancer effects, the MCLs are set at levels below which no adverse health effects are expected to occur.

Noncancer Evaluation—ATSDR's Minimal Risk Level (MRL),EPA's Reference Dose (RfD)

and Reference Concentration (RfC), and OEHHA's Reference Exposure Level (REL)
The MRL, RfD, RfC, and REL are estimates of daily exposure to the human population (including sensitive subgroups), below which noncancer adverse health effects are unlikely to occur. The MRL, RfD, RfC, and REL only consider noncancer effects. Because they are based only on information currently available, some uncertainty is always associated with the MRL, RfD, RfC, and REL. "Safety" factors are used to account for the uncertainty in our knowledge about their danger. The greater the uncertainty, the greater the "safety" factor and the lower the MRL, RfD, RfC, or REL.

When there is adequate information from animal or human studies, oral MRLs and RfDs are developed for the ingestion exposure pathway, whereas, inhalation MRLs, RfCs, and RELs are developed for the inhalation exposure pathway. A MRL, RfD, RfC, or REL is an estimate of daily human exposure to a substance that is likely to be without an appreciable risk of adverse (non-carcinogenic) health effects over a specified duration of exposure. No toxicity values exist for exposure by skin contact. Separate noncancer toxicity values are also developed for different durations of exposure. ATSDR develops MRLs are acute exposures (less than 14 days), intermediate exposures (from 15 to 364 days), and for chronic exposures (greater than 1 year). EPA develops RfDs and RfCs for acute exposures (less than 14 days), subchronic exposures (from 2 weeks to 7 years), and chronic exposures (greater than 7 years). OEHHA develops acute RELs for exposures lasting less than 24 hours and occurring no more frequently than monthly. OEHHA develops chronic RELs for exposures greater than 8 years. Both the oral MRL and RfD for ingestion are expressed in units of milligrams of contaminant per kilograms body weight per day (mg/kg/day). The inhalation MRL, RfC, and REL is expressed in units of mg/m^3.

NPL
The National Priorities List. (Part of Superfund.) A list kept by the U.S. Environmental Protection Agency (U.S. EPA) of the most serious, uncontrolled or abandoned hazardous waste sites in the country. An NPL site needs to be cleaned up or is being looked at to see if people can be exposed to chemicals from the site.

NOAEL
No Observed Adverse Effect Level. The highest dose of a chemical in a study, or group of studies, that did not cause harmful health effects in people or animals.

No Apparent Public Health Hazard
The category is used in ATSDR's PHA documents for sites where exposure to site-related chemicals may have occurred in the past or is still occurring, but the exposures are not at levels expected to cause adverse health effects.

No Public Health Hazard
The category is used in ATSDR's PHA documents for sites where there is evidence of an absence of exposure to site-related chemicals.

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PHA
Public Health Assessment. A report or document that looks at chemicals at a hazardous waste site and tells if people could be harmed from coming into contact with those chemicals. The PHA also tells if possible further public health actions are needed.

Point of Exposure
The place where someone can come into contact with a contaminated environmental medium (air, water, food or soil). Examples: the area of a playground that has contaminated dirt, a contaminated spring used for drinking water, the location where fruits or vegetables are grown in contaminated soil, or the backyard area where someone might breathe contaminated air.

Population
A group of people living in a certain area; or the number of people in a certain area.

Preliminary Remediation Goals (PRGs)
PRGs are developed by the EPA to estimate contaminant concentrations in the environmental media (soil, air, and water), both in residential and industrial settings, that are protective of humans, including sensitive groups, over a lifetime. PRGs were developed for both industrial and residential settings because of the different exposure parameters, such as, different exposure time frames (e.g., industrial setting: workers are exposed for 8 hours/day and 5 days/week vs. residential setting: families are exposed 24 hours/day and 7 days/week; and different "human" exposure points (e.g., industrial setting: healthy adult males vs. residential setting: males, females, young children, and infants), etc. Media concentrations less than the PRGs are unlikely to pose a health threat; whereas, concentrations exceeding a PRGS do not automatically determine that a health threat exists, but suggest that further evaluation is necessary.

Public Health Assessment
See PHA.

Public Health Hazard
The category is used in PHAs for sites that have certain physical features or evidence of chronic site-related chemical exposure that could result in adverse health effects.

Receptor Population
People who live or work in the path of one or more chemicals and could come into contact with them (See Exposure Pathway).

Reference Dose based Media Evaluation Guide (RMEG)
RMEGs are equivalent to EMEGs, but are derived from U.S. EPA RfDs instead of ATSDR's MRLs.

Reference Exposure Level (REL)
The California Office of Environmental Health Hazard Assessment has developed air levels that would pose no significant noncancer risk to individuals exposed short-term (acute REL) and long-term (chronic REL).

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Route of Exposure
The way a chemical can get into a person's body. There are three exposure routes:
1. breathing (also called inhalation),
2. eating or drinking (also called ingestion), and
3. getting something on the skin (also called dermal contact).

Safety Factor
Also called Uncertainty Factor. When scientists don't have enough information to decide if an exposure will cause harm to people, they use "safety factors" and formulas in place of the information that is not known. These factors and formulas can help determine the amount of a chemical that is not likely to cause harm to people.

Suggested No Adverse Response Level (SNARL)
U.S. EPA's health advisories were formerly published as SNARLs. They reflect concerns for health effects other than cancer.

Source (of Contamination)
The place where a chemical comes from, such as a landfill, a pond, a creek, an incinerator, a tank, or a drum. Contaminant source is the first part of an Exposure Pathway.

Special Populations
People who may be more sensitive to chemical exposures because of certain factors such as age, a disease they already have, occupation, sex, or certain behaviors (like cigarette smoking). Children, pregnant women, and older people are often considered special populations.

Superfund Site
See NPL.

Toxic
Harmful. Any substance or chemical can be toxic at a certain dose (amount). The dose is what determines the potential harm of a chemical and whether it would cause someone to get sick.

Toxicology
The study of the harmful effects of chemicals on humans or animals.

Uncertainty Factor
See Safety Factor.

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