Glossary of Terms

General Terms

**Absorption** The process of taking in, as when a sponge takes up water. Chemicals can be absorbed through the skin into the bloodstream and then transported to other organs. Chemicals can also be absorbed into the bloodstream after breathing or swallowing.

**Acute** Occurring over a short time, usually a few minutes or hours. An *acute* exposure can result in short-term or long-term health effects. An *acute* effect happens a short time (up to 1 year) after exposure.

**Ambient** Surrounding. For example, *ambient* air is usually outdoor air (as opposed to indoor air).

**Analyte** A chemical component of a sample to be determined or measured. For example, if the *analyte* is mercury, the laboratory test will determine the amount of mercury in the sample.

**Analytic Epidemiologic Study** Investigations designed to evaluate the causal nature of associations between exposure to hazardous substances and disease outcome by testing scientific hypotheses.

**Applied Research** An investigative study in which the results are used in actual practice.

**Background Level** A typical or average level of a chemical in the environment. *Background* often refers to naturally occurring or uncontaminated levels.

**Biological Indicators of Exposure Study** A study designed to use biomedical testing or the measurement of a chemical (analyte), its metabolite, or another marker of exposure in human body fluids or tissues in order to validate human exposure to a hazardous substance.

**Biological Monitoring** Measuring chemicals in biological materials (blood, urine, breath, etc.) to determine whether chemical exposure in humans, animals, or plants has occurred.

**Biological Uptake** The transfer of hazardous substances from the environment to plants, animals, and humans. This may be evaluated through environmental measurements, such as measurement of the amount of the substance in an organ known to be susceptible to that substance. More commonly, biological dose measurements are used to determine whether exposure has occurred. The presence of a contaminant, or its metabolite, in human biologic specimens, such as blood, hair, or urine, is used to confirm exposure and can be an independent variable in evaluating the relationship between the exposure and any observed adverse health effects.
**Biomedical Testing** Biological testing of persons to evaluate a qualitative or quantitative change in a physiologic function that may be predictive of a health impairment resulting from exposure to hazardous substance(s).

**Body Burden** The total amount of a chemical in the body. Some chemicals build up in the body because they are stored in fat or bone or are eliminated very slowly.

**Carcinogen** Any substance that may produce cancer.

**CAS Number** (also **CAS Registry Number**, **CAS RN**, or **CAS#**) A unique accession number assigned by the Chemical Abstracts Service, a division of the American Chemical Society. Other than being guaranteed unique to a given compound, this number has no particular meaning. CAS Registry Numbers are assigned to every uniquely-identifiable substance, so 'cis-2-hexene', 'trans-2-hexene', and '2-hexene' (a mixture with unspecified cis/trans composition) are all assigned separate CAS Numbers.

**Case Study** The medical or epidemiologic evaluation of a single person or a small number of individuals to determine descriptive information about their health status or potential for exposure through interview or biomedical testing.

**Central Nervous System** The part of the nervous system that includes the brain and the spinal cord.

**CERCLA** The Comprehensive Environmental Response, Compensation, and Liability Act of 1980, also known as Superfund. This is the legislation that created ATSDR.

**Chronic** Occurring over a long period of time (more than 1 year).

**Cluster Investigation** A review of an unusual number, real or perceived, of health events (for example, reports of cancer) grouped together in time and location. *Cluster investigations* are designed to confirm case reports; determine whether they represent an unusual disease occurrence; and, if possible, explore possible causes and environmental factors.

**Community Health Investigation** Medical or epidemiologic evaluation of descriptive health information about individual persons or a population of persons to evaluate and determine health concerns and to assess the likelihood that they may be linked to exposure to hazardous substances.

**Concentration** The amount of one substance dissolved or contained in a given amount of another. For example, sea water contains a higher concentration of salt than fresh water.

**Contaminant** Any substance or material that enters a system (the environment, human body, food, etc.) where it is not normally found.

**Dermal** Referring to the skin. *Dermal* absorption means absorption through the skin.
Descriptive Epidemiology Study of the amount and distribution of disease within a population by person, place, and time.

Disease- and Symptom-Prevalence Study A study designed to measure the occurrence of self-reported disease that may, in some instances, be validated through medical records or physical examination if available, and to determine those adverse health conditions that may require further investigation because they are considered to have been reported at an excess rate. This study design can only be considered hypothesis generating.

Disease Registry A system for collecting and maintaining in a structured record, information on persons having a common illness or adverse health condition.

Dose The amount of substance to which a person is exposed. Dose often takes body weight into account.

Environmental Contamination The presence of hazardous substances in the environment. From the public health perspective, environmental contamination is addressed when it potentially affects the health and quality of life of people living and working near the contamination.

Epidemiologic Surveillance The ongoing, systematic collection, analysis, and interpretation of health data essential to the planning, implementation, and evaluation of public health practice, closely integrated with the timely dissemination of these data to those who need to know. The final link in the surveillance chain is the application of these data to prevention and control. A surveillance system includes a functional capacity for data collection, analysis, and dissemination linked to public health programs.

Epidemiology The study of the occurrence and causes of health effects in human populations. An epidemiological study often compares two groups of people who are alike except for one factor, such as exposure to a chemical or the presence of a health effect. The investigators try to determine if any factor is associated with the health effect.

Exposure Contact with a chemical by swallowing, by breathing, or by direct contact (such as through the skin or eyes). Exposure may be short term (acute) or long term (chronic).

Exposure Registry A system for collecting and maintaining in a structured record, information on persons with documented environmental exposure(s). The exposure registry evolved from the need for fundamental information concerning the potential impact on human health of long-term exposure to low and moderate levels of hazardous substances.

Geographic Information System (GIS) A computer hardware and software system designed to collect, manipulate, analyze, and display spatially referenced data for solving complex resource, environmental, and social problems.
**Hazard** A source of risk that does not necessarily imply potential for occurrence. A hazard produces risk only if an exposure pathway exists, and if exposures create the possibility of adverse consequences.

**Health Investigation** Any investigation of a defined population, using epidemiologic methods, which would assist in determining exposures or possible public health impact by defining health problems requiring further investigation through epidemiologic studies, environmental monitoring or sampling, and surveillance.

**Health Outcomes Study** An investigation of exposed persons designed to assist in identifying exposure or effects on public health. Health studies also define the health problems that require further inquiry by means of, for example, a health surveillance or epidemiologic study.

**Health Professional Education** Any activity or activities directed toward public health professionals and the local medical community. The purpose of this activity is to improve the knowledge, skill, and behavior of health professionals concerning medical surveillance, screening, and methods of diagnosing, treating, and preventing injury or disease related to exposure to hazardous substances. These activities may include immediately disseminating written materials or making database information available, presenting workshops and short courses, or, where appropriate, long-term follow-up activities.

**Health Statistics Review** Evaluation of information and relevant health outcome data for an involved population, including reports of injury, disease, or death in the community. Databases may be local, state, or national; information from private health care providers and organizations may also be used. Databases may include morbidity and mortality data, tumor and disease registries, birth statistics, and surveillance data.

**Health Surveillance** The periodic medical screening of a defined population for a specific disease or for biological markers of disease for which the population is, or is thought to be, at significantly increased risk. The program should include a mechanism to refer for treatment those persons who test positive for disease (also called Medical Monitoring).

**Ingestion** Swallowing (such as eating or drinking). Chemicals can get in or on food, drink, utensils, cigarettes, or hands where they can be ingested. After ingestion, chemicals can be absorbed into the blood and distributed throughout the body.

**Inhalation** Breathing. Exposure may occur from inhaling contaminants because they can be deposited in the lungs, taken into the blood, or both.

**Media** Soil, water, air, plants, animals, or any other parts of the environment that can contain contaminants.
**Metabolism** All the chemical reactions that enable the body to work. For example, food is *metabolized* (chemically changed) to supply the body with energy. Chemicals can be *metabolized* and made either more or less harmful by the body.

**Metabolite** Any product of metabolism.

**Morbidity** Illness or disease. Morbidity rate is the number of illnesses or cases of disease in a population.

**National Priorities List (NPL)** The Environmental Protection Agency's (EPA) listing of sites that have undergone preliminary assessment and site inspection to determine which locations pose immediate threat to persons living or working near the release. These sites are most in need of cleanup.

**National Toxicology Program (NTP)** NTP conducts toxicological testing on those substances most frequently found at sites on the National Priorities List of the EPA, and which also have the greatest potential for human exposure.

**Pilot Health Study** Any investigation of exposed individuals, using epidemiologic methods, which would assist in determining exposures or possible public health impacts by defining health problems requiring further investigation through epidemiologic studies, environmental monitoring or sampling, surveillance, or registries.

**Plume** An area of chemicals in a particular medium, such as air or groundwater, moving away from its source in a long band or column. A *plume* can be a column of smoke from a chimney or chemicals moving with groundwater.

**Registry** A system for collecting and maintaining, in a structured record, information on specific persons from a defined population. Preliminary analyses and reviews are performed.

**Risk** In risk assessment, the probability that something will cause injury, combined with the potential severity of that injury.

**Route of Exposure** The way in which a person may contact a chemical substance. For example, drinking (ingestion) and bathing (skin contact) are two different *routes of exposure* to contaminants that may be found in water.

**Site-Specific Surveillance** Epidemiologic surveillance activity designed to assess the specific occurrence of one or more defined health conditions among a specific population potentially exposed to hazardous substances in the environment.

**Substance-Specific Applied Research** A program of research designed to fill data needs. Activities may include laboratory and other studies to determine short-term, intermediate, and long-term health effects from human exposure to a given substance; laboratory and other studies to determine organ-, site-, and system-specific acute and...
chronic toxicity; laboratory and other studies to determine the manner in which a
substance is metabolized or to develop an understanding of the biokinetics of the
substance; and, where there is the possibility of obtaining human exposure data,
collecting that information.

**Superfund** Another name for the Comprehensive Environmental Response,
Compensation, and Liability Act of 1980 (CERCLA), which created ATSDR.

**Surveillance Activities** Those activities that evaluate exposure or trends in adverse
health effects over a specified period of time. *Surveillance activities* address the ongoing
systematic collection, analysis, and interpretation of health data in the process of
describing and monitoring a health event. Data obtained through surveillance are very
important for appropriate decisions regarding the planning, evaluation, or implementation
of public health interventions.

**Volatile Organic Compounds (VOCs)** Substances containing carbon and different
proportions of other elements such as hydrogen, oxygen, fluorine, chlorine, bromine,
sulfur, or nitrogen; these substances easily become vapors or gases. A significant number
of the VOCs are commonly used as solvents (paint thinners, lacquer thinner, degreasers,
and dry cleaning fluids).

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**ATSDR-Specific Terms**

**Community Assistance Panel (CAP)** *Community assistance panels* are established to
(1) facilitate constructive communication between ATSDR and the affected community;
(2) provide an ongoing series of community-based meetings to ensure community
involvement throughout the range of ATSDR public health activities at a site; and (3)
provide information to ATSDR on the community's health concerns for inclusion in the
public health assessment.

**Comparison Values** Estimated contaminant concentrations in specific media that are not
likely to cause adverse health effects, given a standard daily ingestion rate and standard
body weight. The *comparison values* are calculated from the scientific literature available
on exposure and health effects.

**Exposure Dose Reconstruction** An approach that uses computational models and other
approximation techniques to estimate cumulative amounts of hazardous substances
internalized by people at presumed or actual risk from contact with substances associated
with hazardous waste sites.

**Exposure Investigation** The collection and analysis of site-specific information to
determine if human populations have been exposed to hazardous substances. The site-
specific information may include environmental sampling, exposure-dose reconstruction,
biologic or biomedical testing, and evaluation of medical information. The information
from an exposure investigation is included in public health assessments, health consultations, and public health advisories.

**Hazardous Substances and Health Effects Database (HazDat)** The scientific database developed by ATSDR to manage data collection, retrieval, analysis, and utilization through the sophisticated technologies provided by computerization. HazDat allows ATSDR to locate information on the release of hazardous substances into the environment, and to ascertain the effects of hazardous substances on health with improved uniformity, efficiency, and precision.

**Health Consultation** A response to a specific question or request for information pertaining to a hazardous substance or facility (which includes waste sites). It often contains a time-critical element that necessitates a rapid response; therefore, it is a more limited response than an assessment.

**Health Education** A program of activities to promote health and provide information and training about hazardous substances in the environment that will result in the reduction of exposure, illness, or disease. This program--both national and site-specific in focus--includes diagnosis and treatment information for health care providers and activities in communities to enable them to prevent or mitigate the health effects from exposure to hazardous substances at hazardous waste sites.

**Health Outcome Data** A major source of data for public health assessments. The identification, review, and evaluation of health outcome parameters are interactive processes involving the health assessors, data source generators, and the local community. Health outcome data are community specific and may be derived from databases at the local, state, and national levels, as well as from data collected by private health care organizations and professional institutions and associations. Databases to be considered include morbidity and mortality data, birth statistics, medical records, tumor and disease registries, surveillance data, and previously conducted health studies.

**Medical Monitoring** The periodic medical testing to screen people at significant increased threat of disease.

**Minimal Risk Level (MRL)** An MRL is defined as an estimate of daily human exposure to a substance that is likely to be without an appreciable risk of adverse effects (noncancer) over a specified duration of exposure. MRLs are derived when reliable and sufficient data exist to identify the target organ(s) of effect or the most sensitive health effect(s) for a specific duration via a given route of exposure. MRLs are based on noncancer health effects only. MRLs can be derived for acute, intermediate, and chronic duration exposures by the inhalation and oral routes.

**National Exposure Registry** A listing of persons exposed to hazardous substances. This listing is composed of chemical-specific subregistries. The primary purpose of the registry program is to create a large database of similarly exposed persons. This database
is to be used to facilitate epidemiology research in ascertaining adverse health effects of persons exposed to low levels of chemicals over a long period.

**No Apparent Public Health Hazard** Sites where human exposure to contaminated media is occurring or has occurred in the past, but the exposure is below a level of health hazard.

**No Public Health Hazard** Sites for which data indicate no current or past exposure or no potential for exposure and therefore no health hazard.

**Petitioned Public Health Assessment** A public health assessment conducted at the request of a member of the public. When a petition is received, a team of environmental and health scientists is assigned to gather information to ascertain, using standard public health criteria, whether there is a reasonable basis for conducting a public health assessment. Once ATSDR confirms that a public health assessment is needed, the petitioned health assessment process is essentially the same as the public health assessment process.

**Potential/Indeterminate Public Health Hazard** Sites for which no conclusions about public health hazard can be made because data are lacking.

**Potentially Exposed** The condition where valid information, usually analytical environmental data, indicates the presence of contaminant(s) of a public health concern in one or more environmental media contacting humans (i.e., air, drinking water, soil, food chain, surface water), and there is evidence that some of those persons have an identified route(s) of exposure (i.e., drinking contaminated water, breathing contaminated air, having contact with contaminated soil, or eating contaminated food).

**Public Availability Session** An informal, drop-by meeting at which community members can meet one-on-one with ATSDR staff members to discuss health and site-related concerns.

**Public Comment** An opportunity for the general public to comment on Agency findings or proposed activities. The public health assessment process, for example, includes the opportunity for public comment as the last step in the draft phase. The purposes of this activity are to 1) provide the public, particularly the community associated with a site, the opportunity to comment on the public health findings contained in the public health assessment, 2) evaluate whether the community health concerns have been adequately addressed, and 3) provide ATSDR with additional information.

**Public Health Action** Designed to prevent exposures and/or to mitigate or prevent adverse health effects in populations living near hazardous waste sites or releases. Public health actions can be identified from information developed in public health advisories, public health assessments, and health consultations. These actions include recommending the dissociation (separation) of individuals from exposures (for example, by providing an alternative water supply), conducting biologic indicators of exposure studies to assess
exposure, and providing health education for health care providers and community members.

**Public Health Advisory** A statement by ATSDR containing a finding that a release of hazardous substances poses a significant risk to human health and recommending measures to be taken to reduce exposure and eliminate or substantially mitigate the significant risk to human health.

**Public Health Assessment** The evaluation of data and information on the release of hazardous substances into the environment in order to assess any current or future impact on public health, develop health advisories or other recommendations, and identify studies or actions needed to evaluate and mitigate or prevent human health effects; also, the document resulting from that evaluation.

**Public Health Hazard** Sites that pose a public health hazard as the result of long-term exposures to hazardous substances.

**Public Health Statement** The first chapter of an ATSDR toxicological profile. It is intended to be a health effects summary written in lay language for the target audience, that is, the general public, especially people living in the vicinity of a hazardous waste site or chemical release.

**Risk Communication** Activities to ensure that messages and strategies designed to prevent exposure, adverse human health effects, and diminished quality of life are effectively communicated to the public. As part of a broader prevention strategy, risk communication supports education efforts by promoting public awareness, increasing knowledge, and motivating individuals to take action to reduce their exposure to hazardous substances.

**Significant Health Risk** Circumstances where people are being or could be exposed to hazardous substances at levels that pose an urgent public health hazard or a public health hazard; public health advisories are generally issued when urgent public health hazards have been identified.

**Superfund Amendments and Reauthorization Act (SARA)** The 1986 legislation that broadened ATSDR's responsibilities in the areas of public health assessments, establishment and maintenance of toxicologic databases, information dissemination, and medical education.

**Technical Assistance** A *technical assist* is a written or an oral response to requests for technical information and public health recommendations. This information is frequently incorporated into a health consultation.

**Toxicological Profile** A document about a specific substance in which ATSDR scientists interpret all known information on the substance and specify the levels at which people
may be harmed if exposed. The toxicological profile also identifies significant gaps in knowledge on the substance, and serves to initiate further research, where needed.

**Urgent Public Health Hazard** Sites that pose a serious risk to the public health as the result of short-term exposures to hazardous substances.

**Voluntary Residents Tracking System** A collection of persons who are contacted periodically, for a limited time, for the purpose of disseminating information or of coordinating other health-related services.

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