absorption (1) The taking up of chemical substances by organisms through ingestion, dermal contact, or gaseous exchanges. (2) The process by which one material takes up and retains another through the penetration of the absorbed molecules into the mass of the absorbing material.

acclimation (1) Behavioural or physiological/ biochemical compensatory adjustments of an organism to the alteration of environmental conditions. (2) An adaptation of organisms to selected experimental conditions, including adverse stimuli. (3) The time period prior to the initiation of a toxicity test in which organisms are maintained in an untreated, toxicant-free medium with physical and chemical characteristics similar to those used during the toxicity test.

acute (1) Having a sudden onset, lasting a short time. (2) Of a stimulus, severe enough to induce a response rapidly. Can be used to define either the exposure or the response to an exposure (effect). (3) A brief exposure to a stressor or the effects associated with such an exposure. It can refer to an instantaneous exposure (i.e., oral gavage) or continuous exposures, from minutes to a few days depending on the life span of the organism.

acute:chronic ratio (ACR) The species mean acute toxicity divided by the chronic toxicity for the same species. The final acute:chronic ratio is the geometric mean of all acute:chronic ratios for species of animals in at least three different families.

acute toxicity A toxic effect (severe biological harm or death) produced in an organism by a substance or mixture of substances within a short exposure period (usually 96 hours or less).

acute value [final~] An estimate of the concentration of the material corresponding to a cumulative probability of 0.05 in the acute toxicity values for the genera with which acceptable acute tests have been conducted.

acute value [mean~] The species mean acute value is the geometric mean of all appropriate 96-h (48-h for daphnids) LC_{50} or EC_{50} values for that species. Appropriate tests are flow-through tests in which the concentrations have been measured. The genus mean acute value is the geometric mean of all species mean acute values available for that genus.

additive toxicity The toxicity of a mixture of chemicals that is approximately equivalent to that expected from a simple summation of the known toxicities of the individual chemicals present in the mixture (i.e., an algebraic summation of effects).

adjuvant An ingredient that, when added to a formulation, aids the action of the toxicant. The term includes such materials as wetting agents, spreaders, emulsifiers, dispersing agents, foaming agents, foam suppressants, penetrants, and correctives.

adsorption The process by which one material takes up and retains another through the bonding of the adsorbed molecules onto the surface of the adsorbing material.

air stripping A technique for removal of volatile substances from a solution, normally by the use of large volumes of air.

alkalinity A measure of the hydroxyl ion concentration in a solution expressed as a pH value between 7 and 14. Alkalinity is a capacity factor that represents the acid-neutralizing capacity of a system.

ambient The conditions in the surrounding environment.

ambient concentration Representative level of a contaminant in an area. May reflect natural geologic variations or the influence of generalized industrial or urban activity in a region, presumably unaffected by point sources of contaminant release.

anadromous Refers to the upstream migration of fish from the sea to freshwater during spawning seasons.

antagonism A phenomenon in which the toxicity of a mixture of chemicals is less than that which would be expected from a simple summation of the toxicities of the individual chemicals present in the mixture (i.e., an algebraic subtraction of effects).

anthropogenic Refers to the activities of humans or the alterations resulting from them.

appreciable risk An estimated rate of incidence or frequency of disease, or level of chemical exposure considered significant. Appreciable risks must be defined chemical by chemical and must consider all potential sources of exposure and the critical hazard attributed to that exposure.

application factor (AF) A numerical, unitless value calculated as the threshold chronically toxic concentration of a chemical divided by its acutely toxic concentration. An AF is generally calculated by dividing the limits (no-observed-effect concentration [NOEC] and lowest-observed-effect concentration [LOEC]) of the maximum acceptable toxicant concentration (MATC) by the time-independent LC_{50} if available, or

the 96-h LC_{50} (48-h EC_{50} or 48-h LC_{50} for daphnids) from a flow-through acute toxicity test. The AF is usually reported as a range and is multiplied by the median lethal concentration of a chemical as determined in a short-term (acute) toxicity test to estimate an expected no-effect concentration under chronic exposure.

aquifer Groundwater-bearing formations sufficiently permeable to transmit and yield water in usable quantities.

assimilation (1) In cells, the incorporation of absorbed substances (e.g., foodstuff) for growth and reproduction. (2) The capacity of a mass of air or body of water to dilute the release of pollutants.

background concentration Representative, naturally occurring level of a contaminant in the environment. Reflects natural geologic variations.

benchmark concentration Specific concentrations at which some level of effects is expected (e.g., LC_{25} and maximum acceptable toxicant concentration). These concentrations are derived from hazard assessment.

benthic Refers to the substrate at the bottom of aquatic habitats (e.g., lakes, oceans, and rivers). Also describes the life strategy of organisms living in or on that substrate (e.g., clams and oligochaete worms).

bioaccumulation The process by which chemical substances are accumulated by organisms from exposure to water, sediments, or soil directly or through consumption of food containing the chemicals.

bioaccumulation factor (BAF) The ratio of the concentration of a given compound in the tissues of an organism and its concentration either in the media in which the organism lives or in the tissues of biota on which the organism feeds.

bioassay Test used to evaluate the relative potency of a chemical by comparing its effect on living organisms or parts thereof (e.g., cell culture) with the effect of a control.

bioavailable The fraction of the total chemical in the surrounding environment that can be taken up by organisms. The chemical may be dissolved or reversibly bound to particles in water, air, sediment, or soil, or contained in food items.

biochemical oxygen demand (BOD) The measurement of the decrease in oxygen content ($mg \cdot L^{-1}$) of a sample of water over a certain period of time, in the dark, at a certain temperature, which is brought about by the increase in bacterial respiration rate during the breakdown of organic matter. The oxygen demand is measured after 5 d (BOD5), at which time 70% of the final value has usually been reached.

bioconcentration The process by which contaminants are directly taken up by organisms from the medium in which they live.

bioconcentration factor (BCF) The ratio of the concentration of a given compound in the tissues of an organism and its concentration in the media in which the organism lives (e.g., soil or water). The ratio reflects the apparent equilibrium stage of the uptake phase during a bioconcentration test.

biodegradation The aerobic or anaerobic breakdown of organic substances, including organic contaminants, by biota such as microbes and fungi.

biological monitoring The direct measurement of changes in the biological component of a habitat, based on physiological, behavioural, reproductive, or other responses in organisms, relative to environmental changes in time or space. Other common responses measured include contaminant levels in tissue and changes in the taxonomic composition of assemblages.

biomagnification The increase in tissue concentrations of accumulated chemicals from one trophic level to the next (i.e., organisms contain higher concentrations of the substance than their food sources).

biomarkers Biochemical or cellular indicators of exposure to contaminants (e.g., body burden, indicators of DNA damage, enzyme activity, and biochemical indicators of reproductive or biogenetic status).

biota Biological organisms (e.g., plants, microbes, fish, and wildlife).

bioturbation The physical disturbance of sediments by burrowing and other activities of organisms.

buffer A solution containing a weak acid and its conjugate weak base whose pH changes only slightly on the addition of acid or base.

carcinogen A substance that can potentially induce cancer in a living organism.

carcinogenic potency Expressed as a concentration or dose that induces a 5% increase in the incidence of, or death due to, tumours or heritable mutations associated with exposure.

cation exchange The interchange between a cation in solution and another cation on the surface of any surface-active material (e.g., clay or colloidal organic matter).

cation-exchange capacity The total quantity of cations that a soil or sediment can adsorb by cation exchange, usually expressed as milliequivalents per 100 g.

check mechanisms An iterative system by which verifications are made on the guideline value to ensure that it is consistent with values derived for other media, pathways, or receptors.

chelate An organic coordination compound in which a central metal ion is attached by coordinate links to two or more nonmetal atoms (i.e., ligands) to form a heterocyclic ring having coordinate covalent bonds.

chemosynthesis The synthesis of organic matter from inorganic compounds, using simple inorganic reactions as a source of energy.

chlorination (1) The process of introducing one or more chlorine atoms into a compound. (2) The application of chlorine to water, sewage, or industrial wastes for disinfection or for other biological or chemical results.

chronic Involving a stimulus that is lingering or continuous over a long period of time; often signifies periods varying from several weeks to years, depending on the reproductive life cycle of the species. Can be used to define either the exposure or the response to an exposure (effect). Chronic exposure typically induces a biological response of relatively slow progress and long continuance.

chronic toxicity A toxic effect produced in an organism by a substance or mixture of substances over a long exposure period.

chronic value The geometric mean of the lower and upper limits from an acceptable chronic test, or the result of a regression analysis done on chronic data. A lower chronic limit is the highest tested concentration that did not cause an unacceptable amount of adverse effect on any of the specified biological measurements and below which no tested concentration caused an unacceptable effect. An upper chronic limit is the lowest tested concentration that did cause an unacceptable amount of adverse effect on one or more biological measurements and above which all tested concentrations also caused such an effect.

clay Soil and sediment particles of equivalent diameter <0.002 mm usually consisting of clay minerals but commonly including amorphous free iron oxides and primary minerals.

clay mineral Finely crystalline hydrous aluminum silicates and hydrous magnesium silicates with a phyllosilicate structure.

coagulation The process of converting a finely divided or colloidally dispersed suspension of a solid into particles of such size that settling takes place.

colloid Fine-grained material in suspension that typically measures 1 nm to 0.45 µm in diameter. Colloids (colloidal particles) cannot settle out of a circulating medium through the force of gravity and cannot diffuse through membranes that allow ordinary molecules and ions to pass freely.

community An assemblage of organisms characterized by a distinctive combination of species occupying a common environment and interacting with one another.

condensation (1) A chemical change in which two or more molecules react, resulting in the elimination of water or some other simple substance. (2) The change of a vapour into a liquid that occurs when the pressure of the vapour becomes equal to the maximum vapour pressure of the liquid at that temperature.

congener A compound belonging to a family of compounds having similar chemical skeletons but differing in the number and position of hydrogen substitutes (e.g., PCBs and PAHs).

congenital Existing at or dating from birth.

contaminant Any chemical substance whose concentration exceeds background concentrations or that does not naturally occur in the environment

control A treatment in a toxicity test or in a field study that duplicates all the conditions of the exposure treatments or test sites except that the control contains no test substance. This determines the absence of toxicity under the basic test conditions. It is often called negative control treament to differentiate it from positive control treatments. In a positive control treatment, a chemical known to elicit the desired response is added to the exposure medium of this treatment to demonstrate the validity of the measured endpoint under the tested conditions and the absence of toxicity in presence of the test substance.

criteria Numerical value(s) or narrative statement for a physical, chemical, or biological characteristic of water, biota, soil, or sediment that must not be exceeded to protect, maintain, and improve the specific uses of soil, sediment, and water.

critical hazard The health effect that occurs at the lowest dose level defined by the most suitable bioassay or other health study and is the effect from which the no-observed- [adverse] effect level (NO[A]EL) or lowest-observed- [adverse] effect level (LO[A]EL) is defined to derive guidelines.

cross-media transfer The movement of chemicals from one medium to another through migration and dispersal.

delivered dose The amount or concentration of a substance at the targeted site within the body. The delivered dose may consider metabolic activation processes, pharmacodynamics, and tissue dosimetry.

denitrification The loss of nitrogen from soil, water, or sediment by biological and chemical reduction of nitrate to nitrite and then to other compounds with gaseous nitrogen being released in the process.

detection limit The smallest concentration or amount of a substance that can be reported as present in a sample with a specified degree of certainty by a definite, complete analytical procedure.

detritus Unconsolidated sediments composed of inorganic and decaying organic material.

dissolved constituent The constituents of a water sample or a soil, sediment, or tissue digestate that will pass through a 0.45-µm membrane filter.

dose The quantifiable amount of a material introduced into an animal.

early life-stage test Toxicity test on the early life stages of a species, from shortly after fertilization through embryonic, larval, or early juvenile development. Data are obtained on survival and growth.

ecological receptor A nonhuman organism potentially experiencing adverse effects from exposure to contaminated media either directly (e.g., through contact) or indirectly (e.g., through food chain transfer).

ecosystem An ecological system. A natural unit of living and nonliving components that interact to form a stable system in which a cyclic interchange of material takes place between living and nonliving units.

effective concentration [median~] (EC_{50}) The concentration of a stressor that is estimated to be effective in producing a biological response, other than mortality, in 50% of the test organisms over a specific time interval (e.g., a 48-h daphnid EC_{50}).

effective dose [median~] (ED_{50}) The dose of material estimated to be effective in producing some sublethal response in 50% of the test organisms. It is appropriately used with test animals such as rats, mice, and dogs, but it is rarely applicable to aquatic organisms because it indicates the quantity of a material introduced directly into the body by injection or ingestion rather than the concentration of the material in water in which aquatic organisms are exposed during toxicity tests.

endpoint measurement An effect on an ecological component that can be measured and described quantitatively.

estimated daily intake (EDI) Total background exposure to a chemical. Estimated daily intake arises from the low levels of contamination commonly found in air, water, food, and soil. Estimated daily intake of a chemical is determined through a multimedia exposure assessment.

eutrophic Refers to aquatic environments that have abundant nutrients and high rates of productivity. In water bodies such as lakes, ponds, and slow-moving rivers, oxygen levels below the surface layer may be depleted. Opposite of oligotrophic.

eutrophication The natural and/or anthropogenic processes by which the nutrient content of natural waters is increased, generally resulting in an increase of biotic productivity and biomass.

excretion Expulsion of metabolic wastes, sometimes including toxic substances, into the environment by microbes, animals, and plants.

expected environmental concentration (EEC) The calculated concentration of a chemical in a particular medium for a particular site.

exposure The amount of a physical or chemical agent that reaches a target or receptor through ingestion, dermal absorption, and inhalation.

exposure assessment The process of estimating the dose received by an organism, population, or ecosystem. It may be prospective where estimates of the chemical concentrations and forms in various media or habitats are combined with estimates of the organism's behaviour to predict dose, or it may also be retrospective where dose is estimated from body burdens of the chemical or changes in the organism caused by the chemical (biomarkers).

exposure characterization Identification of the conditions of contact between a substance and an individual or population. Exposure characteristics may involve identifying the concentration, routes of uptake, target sources, environmental pathways, and population at risk.

exposure estimation Estimate of the amount and duration of contact between a substance and an individual or a population. Exposure estimates consider factors such as concentration, routes of uptake, target sources, environmental pathways, population at risk, and time scale.

exposure route/pathway The means by which organisms are exposed to contaminants. Routes/pathways would include uptake of contaminants from solution, ingestion of contaminated food or prey, and inhalation of contaminated particles. More generally, routes of exposure include exposure via air, water, soil, sediments, food, and other media to which the organism may be exposed.

exposure scenario A clearly and quantitatively defined description of all circumstances associated with a receptor that would permit the estimation of chemical exposure. These circumstances include amounts of air, food, water, and soil consumed, and the critical receptor's weight, age, sex, and all other relevant considerations.

fate The manner in which a material will partition between various environmental compartments (e.g., soil, sediment, water, air, or biota) as a result of transport, transformation, and degradation.

field capacity The maximum amount of water that can be held in pore spaces of soil after excess water has drained away.

final soil quality remediation objective (SQRO) The site-specific and substance-specific numerical concentration set as a remediation target that considers the recommended soil quality remediation objective as well as technical, economic, and sociopolitical conditions.

flow-through system An exposure system for aquatic toxicity tests in which control water and test material solution flow into and out of test chambers on a once-through basis either intermittently or continuously.

guidelines Generic numerical concentrations or narrative statements that are recommended as upper limits to protect and maintain the specified uses of air, water, sediment, soil, or wildlife. These values are not legally binding.

hardness The concentration of all metallic cations, except those of the alkali metals, present in water. In general, hardness is a measure of the concentration of calcium and magnesium ions in water and is frequently expressed as $mg \cdot L^{-1}$ calcium carbonate equivalent.

humic substances Partially broken down organic substances that occur in water or sediment, mainly in a colloidal state. Humic acids are large-molecule organic acids that dissolve in water.

hydraulic conductivity The proportionality factor between hydraulic gradient and flux in Darcy's law. Hydraulic conductivity measures the inherent ability of a porous medium to conduct water.

hydrogenation The process of combining, treating with, or exposing to hydrogen. The action of adding hydrogen to a molecule, generally to an unsaturated organic compound.

hydrolysis (1) The formation of an acid and a base from a salt by the ionic dissociation of water. (2) The chemical decomposition of a compound by interaction with water.

incipient LC_{50} The concentration of a chemical that is lethal to 50% of the test organisms resulting from exposure periods that were sufficiently long for acute lethal action to essentially cease. The asymptote (part of the toxicity curve almost parallel to the time axis) of the toxicity curve indicates, approximately, the value of the incipient LC_{50}.

interim criteria Generic numerical soil concentrations or narrative statements considered protective of ecological and human health receptors and endorsed as such by the CCME. They were adopted from the values used in other jurisdictions and are not necessarily scientifically based. Interim criteria are being replaced by risk-based scientifically defensible guidelines derived according to the CCME's 1996 soil protocol.

interim guideline For sediment, water, and tissue residue guidelines: a guideline value derived from a data set that has met a lesser CCME requirement than that of a full guideline. Once data gaps are addressed by the scientific community, a full guideline may be derived.

interstitial Occurring in the spaces between particles or cells. Applied to water found between, and to flora and fauna living between, sediments and soil particles.

in vitro Outside the intact organism; generally applied to experiments involving biochemical events occurring in tissue fragments or fractions.

in vivo Within an intact animal or organism.

ionization The process whereby atoms acquire an electrical charge through the gain or loss of electrons.

K_d The ratio of the concentration of a chemical associated with the particulate phase, the particulate phase being expressed as the total weight of particles, and the concentration of that chemical in the dissolved phase, at equilibrium.

K_{oc} Organic carbon (normalized) partition coefficient.The ratio of the concentration of a chemical associated with the particulate phase, the particulate phase being expressed as the weight of the organic carbon content, and the concentration of that chemical in the dissolved phase, at equilibrium. The logarithm of K_{oc} is used as an indication of a chemical's propensity for accumulating in organic matter, such as humin or humic acid.

K_{ow} Octanol–water partition coefficient. The ratio of a chemical's concentration in *n*-octanol and its concentration in water at equilibrium. The logarithm of K_{ow} is used as an indication of a chemical's propensity for bioconcentration in aquatic organisms.

leaching The process by which soluble constituents are gradually removed from soil through the action of percolating water.

lethal concentration [median~] (LC_{50}) The concentration of a stressor that is estimated to be lethal to 50% of the test organisms over a specific time interval (e.g., 96-h LC_{50}).

lethal dose [median~] (LD_{50}) The dose of material that is estimated to be lethal to 50% of the test organisms. It is appropriately used with test animals such as rats, mice and dogs, but it is rarely applicable to aquatic organisms because it indicates the quantity of a material introduced directly into the body by injection or ingestion rather than the concentration of the material in water in which aquatic organisms are exposed during toxicity tests.

life-cycle study A chronic study involving the entire reproductive cycle of an organism in which all the

significant life stages of the organism are exposed to a test material. A partial life-cycle toxicity test includes that part of the life cycle that has been observed to be especially sensitive to chemical exposure.

lifetime incremental risks The increase in the probability for an organism of experiencing an adverse effect during its life span due to the occurrence of a precise event or the existence of a chronic situation.

ligand A nonmetal ion, molecule, or atom that is attached to the central atom of a coordination compound, a chelate, or other complex, by donating one or more pair of electrons. May also be called complexing agent.

limiting pathway (1) The route of exposure to a contaminant through which a receptor is most sensitive. (2) The step that limits other steps from taking place during the dissipation of a chemical in the environment. Analogous to rate-limiting step in a chemical reaction.

loading (1) A ratio of the animal biomass to the volume of test solution in an exposure chamber. (2) The amount of a substance added per unit area per unit time.

long-term exposure Exposure to a contaminant in a medium, lasting from several weeks to years, often encompassing the reproductive cycle or life cycle of the test organism. Usually referred to as a chronic exposure. Absolute definitions for this term vary among studies.

lowest-observed- [adverse] effect level (LO[A]EL) The lowest dose or concentration used in a bioassay that results in statistically significant observed effects in the exposed organisms compared with control organisms. In some cases, observed effects may be of questionable impact or possibly beneficial, therefore, obvious negative effects may be differentiated as "adverse."

lowest-observed-effect concentration (LOEC) The lowest concentration of a chemical used in a toxicity test that has, relative to a control, a statistically significant adverse effect on the test organism.

lowest-observed-effect dose (LOED) The lowest dose of a chemical used in a toxicity test that has, relative to a control, a statistically significant adverse effect on the test organism.

lowest-observed-effect level (LOEL) A general term used to describe the lowest dose or concentration of a chemical used in a toxicity test that has a statistically significant adverse effects on the test organism.

macronutrient A chemical necessary in large amounts for plant growth (e.g., nitrogen, phosphorus, potassium, calcium, magnesium, and sulphur).

maximum acceptable concentration (MAC) The highest concentration at which a contaminant can be present and not cause adverse effects greater than those predetermined to be acceptable.

maximum acceptable toxicant concentration (MATC) The calculated or "intrapolated" maximum concentration at which a stressor can be present and not be toxic to the test organism. The MATC is normally calculated as the geometric mean of the LOEC and the NOEC.

measured flow-through test A toxicity test with constant flow or continuous flow of water where the concentration of the tested substance in the water is measured and kept constant through continual addition of the substance to maintain a stable exposure concentration.

mineralization (1) Microbial transformation of soil organic matter into mineral substances that can be used by plants. (2) Geologic transformation of metals into ore. (3) The process by which the mineral content of water increases as it percolates through specific geologic strata.

mineral soil A soil consisting predominantly of mineral matter (organic carbon <17%), except for an organic surface layer that may be up to 40 cm thick.

modified soil quality remediation objective A site-specific and substance-specific numerical value derived through modification of the generic guideline. At the time of its development, the modified soil quality remediation object is cross-checked against scientific considerations surrounding the human and environmental health conditions at the site and, thus, has not yet been put forward as the recommended soil quality remediation objective.

modifying factor Any characteristic of an organism or of the surrounding environment that affects toxicity.

multimedia exposure assessment The quantitative estimate of total exposure to a chemical arising from all sources (e.g., air, water, soil, sediment, food, or consumer products) by all routes (e.g., ingestion, inhalation, or dermal absorption).

mutagenesis The occurrence or induction of a permanent change in the genetic material of a cell that can be transmitted to subsequent generations of cells.

mutagenicity The ability of a chemical to induce a permanent, inheritable change in the genetic material.

N-fixation The conversion of elemental nitrogen (N_2) to organic forms or to forms readily usuable in biological processes.

nonthreshold toxicant A toxicant that produces adverse effects at all levels of exposure. Effects are intensified as exposure concentration increases.

no-observed- [adverse] effect level (NO[A]EL) The highest dose or concentration in a bioassay that results in no statistically significant observed effect in the exposed organisms compared with control organisms. In some cases, observed effects may be of questionable

impact or may possibly be beneficial, therefore, obvious negative effects may be differentiated as "adverse".

no-observed-effect concentration (NOEC) The highest concentration of a contaminant used in a toxicity test that has, relative to a control, no statistically significant adverse effect on the exposed population of test organisms.

no-observed-effect dose (NOED) The highest dose of a chemical used in a toxicity test that has, relative to a control, no statistically significant adverse effect on the exposed population of test organisms.

no-observed-effect level (NOEL) A general term used to describe the highest dose or concentration of a chemical used in a toxicity test that has, relative to a control, no statistically significant adverse effect on the exposed population of test organisms.

nutrient A substance necessary for the growth and development of plants or animals.

objective A numerical concentration or narrative statement that has been established by taking into account site-specific conditions to protect and maintain a specified use of a resource, such as water, soil, sediment, or tissue, at a particular site.

oligotrophic Refers to aquatic environments that have low levels of nutrients and low rates of productivity. Opposite of eutrophic.

orphan site A contaminated site for which the responsible party cannot be identified or where the owner cannot be held responsible for the cleanup of the site.

osmosis Movement of water molecules through a semipermeable membrane, going from the high water concentration side to the low water concentration side, tending to equalize the concentrations on both sides of the membrane.

oxidation Chemical reaction in which a substance loses electrons, usually through combination with oxygen.

pathogenic Capable of eliciting disease in an organism.

pelagic (1) Living in the water column of a body of water and having no close association with the bottom substrate. (2) Term applied to organisms of the plankton and nekton that inhabit the open water of a sea or lake.

periphyton A community of small or microscopic aquatic organisms (plants, animals, and bacteria) that live attached to submerged surfaces.

pH A value taken to represent the acidity or alkalinity of an aqueous solution. It is defined as the negative logarithm of the hydrogen ion activity of the solution.

polluter pays principle Refers to the principle in which the producer of a pollutant pays for prevention and control methods and in which the polluter is financially responsible for correcting or remediating whatever environmental degradation their actions have caused.

polymerization A chemical reaction, usually carried out in the presence of a catalyst, heat, light, or pressure in which a large number of relatively simple molecules combine to form a chain-like macromolecule.

porosity The volume proportion of the total bulk not occupied by solid particles.

pristine Describes a natural system that has not been affected by anthropogenic pollution.

probable effect level (PEL) The concentration of a chemical above which adverse biological effects are expected to occur frequently.

provisional guidelines (1) For sediment guidelines: a guideline value that has been adopted from another jurisdiction since existing data are insufficient to meet the minimal CCME requirements for guideline derivation. (2) For soil guidelines: a guideline value derived from a data set that has met a lesser CCME requirement than that of a full guideline. Once data gaps are addressed by the scientific community, a full guideline may be derived.

purge (1) The removal of volatile or dissolved substances through intense agitation, aeration, or heating. (2) The removal of the gut contents of organisms.

quantitative structure activity relationship (QSAR) A method of estimating the unmeasured physical and toxicological properties of a chemical through chemical structure, functional groups, and similarities to known chemicals.

radical A molecule or atom containing one or more unpaired electrons (e.g., OH^-), making it highly reactive and subject to react readily with biological tissues causing damage.

receptor/critical receptor The entity (e.g., person, organism, population, community, or ecosystem) that might be adversely affected by contact with, or exposure to, a substance of concern. For human health risk assessment, it is common to define a critical receptor as the person expected to experience the most severe exposure (due to age, sex, diet, lifestyle, etc.) or the most severe effects from exposure (due to state of health, genetic disposition, sex, age, etc.).

recommended soil quality remediation objective A site-specific and substance-specific numerical value derived through modification of the generic guideline. It reflects scientific considerations surrounding the human and environmental health conditions at the site. Together with its supporting documentation, it is put forward as the starting point in determining a cleanup target that also considers technical, economic, and sociopolitical conditions.

reduction Chemical reaction in which a substance gains electrons, usually through the removal of oxygen.

reduction–oxidation (redox) potential (Eh) Parameter describing the oxidizing or reducing force of a medium. It quantitatively expresses the possibility of a substance to be oxidized or reduced, depending on the relative ability of that substance to undergo either of these reactions.

reference concentration (RC) A level of a chemical in the tissues of an aquatic prey item (i.e., organism) that is to be consumed by mammalian or avian wildlife. The reference concentration is based on a tolerable daily intake (TDI) and is expected to protect against variation in food ingestion rates and body weights of consumers.

remediation The management of a contaminated site to prevent, minimize, or mitigate damage to human health or the environment. Remediation may include both direct physical actions (e.g., removal, destruction, and containment of contaminants) and institutional controls (e.g., zoning designations or orders).

remediation guideline The concentration of a substance that is recommended as the "clean-down-to" level. For soil, this level is considered generally protective of human and environmental health for specified uses of soil and water at contaminated sites. These guidelines are generic and do not address site-specific conditions.

resistance time The period of time for which an organism can live beyond the incipient lethal level.

risk The probability that a defined undesired effect, such as injury, disease, or death, will result from a specific event, such as a human action, a natural catastrophe, or an exposure to a substance.

risk assessment A set of scientific methods for defining and estimating the probability and magnitude of undesired effects to receptors resulting from a specific event, such as a human action, a natural catastrophe, or an exposure to a substance.

runoff The portion of the total precipitation on an area that flows into stream channels. Water from surface runoff does not enter the soil. Water from groundwater runoff or seepage flow enters the soil before reaching the stream.

safety factor A number used to provide an extra margin of safety beyond the known or estimated sensitivities of organisms. Often applied when sufficient information about the toxicity, particularly the chronic toxicity, of a substance is not well known.

sand A soil or sediment particle between 0.05 and 2 mm in equivalent diameter.

scale A calcareous deposit in water tubes or steam boilers resulting from deposition of mineral compounds present in the water.

seston All particulate matter suspended in water.

short-term exposure Exposure to a contaminant in a medium for a time period that is small compared to the life span of the test organism. Exposure is usually severe enough to rapidly induce an effect. Often referred to as an acute exposure. Absolute definitions for short-term exposure vary from study to study.

silt A soil or sediment particle between 0.002 and 0.05 mm in equivalent diameter.

site-specific guideline Numerical concentration or narrative statement that has been established to maintain and protect a designated present or future resource use at a specified site by only taking into account site-specific biotic and abiotic conditions (i.e., science-based considerations.

site-specific objective Numerical concentration or narrative statement that has been established to maintain and protect a designated present or future resource use at a specified site by taking into consideration site-specific conditions (i.e., science-based considerations), socioeconomic considerations, or technological considerations, or any combination thereof.

soil horizon The soil layer, generally parallel to the surface, that is characterized by particular physical and chemical properties (e.g., organic matter content, concentration of metal oxydes).

soil profile The various layers of soil as seen in a vertical section obtained by making a bore hole or as observed in a deep cut.

solubility The maximum concentration of a substance that will dissolve in a solvent.

solvent In aquatic bioassays, an agent (other than water) in which the test chemical is mixed to make it miscible with dilution water before distribution to test chambers.

sorption A surface phenomenon that may be either absorption or adsorption, or a combination of the two. The term is often used when the specific mechanism is not known.

species Generally regarded as a group of organisms that resemble each other to a greater degree than their resemblance to members of other groups and that form a reproductively isolated unit that will not normally breed with members of other groups.

standard A legally enforceable numerical limit or narrative statement, such as in a regulation, statute, contract, or other legally binding document, that has been adopted from a criterion or an objective

standing crop The weight of organic material that can be sampled or harvested by normal methods at any one time from a given area.

static system An exposure system for aquatic toxicity tests in which the test chambers contain solutions of the

test material or control water that are not usually changed during the test. Depending upon conditions, a static system may or may not be in equilibrium.

stereoisomers Molecules in which atoms are linked according to the same sequence but are organized differently in space.

sublethal Below the level that causes death.

survival time The time interval between initial exposure of an organism to a harmful parameter and death.

synergism A phenomenon in which the toxicity of a mixture of chemicals is greater than that which would be expected from a simple summation of the toxicities of the individual chemicals.

teratogen An agent that increases the incidence of congenital malformations.

teratogenicity The ability of a chemical to change the normal development processes of an unborn organism, resulting in permanent alterations in the biochemical, physiological, or anatomical functions of the organism.

thermodynamically stable The ability of a molecule to remain chemically unaltered under standard temperature and pressure.

threshold The concentration or dose of a chemical below which the resulting effects cease to be perceptible.

threshold concentration The concentration of a chemical below which adverse effects are expected to occur rarely and above which adverse effects may be expected.

threshold effect level (TEL): The concentration of a chemical below which adverse effects are expected to occur rarely.

tissue residue The concentration of a foreign chemical or substance present in the tissue of aquatic biota such as fish, shellfish, invertebrates, and aquatic plants, expressed on a whole-body wet-weight basis.

tolerable daily intake (TDI) The level of daily chemical exposure that an organism can sustain with no expected adverse effects. A tolerable daily intake can only be determined for chemicals with threshold effects (i.e., noncarcinogens). It can be expressed as the geometric mean of the LOEL and NOEL, which may be divided by a safety factor.

tolerable incremental exposure The additional exposure to which an organism may be submitted over and above background estimated daily intake without exceeding the tolerable daily intake for that substance.

tolerance The ability of an organism to withstand a given environmental condition for an indefinitely long period of time without dying.

total metal (1) A measure of the total mass of metal present in a sample both in dissolved state and sorbed to particulate matter in suspension. (2) For sediments, a measure of the total mass of metal present in a sample that does not necessarily include the residual fraction associated with the mineral lattice. Therefore, total metal concentrations may be referred to as “near-total” concentrations.

total recoverable metal The total measurable mass of an unfiltered sample following treatment with hot dilute mineral acid.

toxic Causing or having the potential to cause adverse effects to organisms or populations.

toxicant Agent or material capable of producing an adverse response (effect) in a biological system, seriously injuring structure or function, or producing death.

toxicity The inherent potential or capacity of a material to cause adverse effects in a living organism.

toxicity test The means by which the toxicity of a chemical or other material is determined. Toxicity tests are used to measure the degree of response produced by exposure to a specific level of stimulus or concentration of chemical.

toxic unit The ratio between the concentration of chemical in solution and its median lethal concentration. It is used as an indicator of the strength of a chemical solution. Solutions with a toxic unit greater than 1 will result in more than 50% mortality in the organisms on which the LC_{50} was based.

uncertainty factor See safety factor.

unsaturated zone Referring to the soil column, an area that is not saturated with water and lies above the water table. The water table is referred to as the saturated zone.

uptake: A process by which substances are absorbed and incorporated into a living organism.

volatilization (1) A process by which a substance goes from liquid state to vapour state. (2) A process by which a substance enters the vapour phase.

wildlife In reference to tissue residue guidelines, wildlife encompasses mammalian, avian, reptilian, and amphibian species that consume aquatic biota.

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For further scientific information, contact:

Environment Canada
Guidelines and Standards Division
351 St. Joseph Blvd.
Hull, QC K1A 0H3
Phone: (819) 953-1550
Facsimile: (819) 953-0461
E-mail: ceqg-rcqe@ec.gc.ca
Internet: http://www.ec.gc.ca

For additional copies, contact:

CCME Documents
c/o Manitoba Statutory Publications
200 Vaughan St.
Winnipeg, MB R3C 1T5
Phone: (204) 945-4664
Facsimile: (204) 945-7172
E-mail: spccme@chc.gov.mb.ca

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