Term
Agent-based risk assessments Definition: A risk assessment that is specific to a particular chemical, agent, or stressor that are intended to provide generalized assessments of risk associated with the particular agent, regardless of the specific location where the agent occurs.
Benchmark Concentration Definition: A concentration that produces a predetermined change in response rate of an adverse effect (called the benchmark response or BMR) compared to background. Acronym: BMC
Benchmark Concentration Limit Definition: A statistical lower confidence limit on the dose or concentration at the BMD or BMC, respectively. Acronym: BMCL
Benchmark Dose Definition: A dose that produces a predetermined change in response rate of an adverse effect (called the benchmark response or BMR) compared to background. Acronym: BMD
Benchmark Dose Limit Definition: A statistical lower confidence limit on the dose or concentration at the BMD or BMC, respectively. Acronym: BMDL

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Benchmark response Definition: An adverse effect, used to define a benchmark dose from which an RfD (or RfC) can be developed. The change in response rate over background of the BMR is usually in the range of 5-10%, which is the limit of responses typically observed in well-conducted animal experiments. Acronym: BMR
Dose-response assessment Definition: Dose-response assessment (http://www.epa.gov/risk/dose-response.htm) examines the relationship between exposure and effects.
Exposure assessment Definition: Exposure assessment (http://www.epa.gov/risk/exposure.htm) examines what is known about the frequency, timing, and levels of contact with a stressor.
Hazard identification Definition: Hazard identification (http://www.epa.gov/risk/hazardous-identification.htm) examines whether a stressor has the potential to cause harm to humans and/or ecological systems, and if so, under what circumstances.
Inhalation unit risk Definition: The upper-bound excess lifetime cancer risk estimated to result from continuous exposure to an agent at a concentration of 1 µg/L in water, or 1 µg/m3 in air. The interpretation of inhalation unit risk would be as follows: if unit risk = 2 x 10-6 per µg/L, 2

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excess cancer cases (upper bound estimate) are expected to develop per 1,000,000 people if exposed daily for a lifetime to 1 µg of the chemical in 1 liter of drinking water.
Lifestage Definition: A distinguishable time frame in an individual's life characterized by unique and relatively stable behavioral and/or physiological characteristics that are associated with development and growth. For example, childhood is a sequence of lifestages, from conception through fetal development, infancy, and adolescence, and as such, EPA guidance recommends the use of the following childhood age groups: Age groups less than 12 months old include: birth to <1 month, 1 to <3 months, 3 to <6 months, and 6 to <12 months. Age groups greater than 12 months old include: 1 to <2 years, 2 to <3 years, 3 to <6 years, 6 to <11 years, 11 to <16 years, and 16 to <21 years. Other lifestages that may be important to consider when assessing human exposure and risk including: pregnancy; nursing; and old age.
Lowest-observed-adverse-effect level Definition: The lowest exposure level at which there are biologically significant increases in frequency or severity of adverse effects between the exposed population and its appropriate control group. Acronym: LOAEL
No-observed-adverse-effect level Definition: The highest exposure level at which there are no biologically significant increases in the frequency or severity of adverse effect between the exposed population and its appropriate control; some effects may be produced at this level, but they are not considered adverse or precursors of adverse effects. Acronym: NOAEL

Term
Place-based risk assessments Definition: A risk assessment for a particular geographic location, such as a superfund site or a specific watershed are known as "place-based" and often involve multiple agents.
Probabilistic modeling Definition: A technique that utilizes the entire range of input data to develop a probability distribution of exposure or risk rather than a single point value. The input data can be measured values and/or estimated distributions. Values for these input parameters are sampled thousands of times through a modeling or simulation process to develop a distribution of likely exposure or risk. Probabilistic models can be used to evaluate the impact of variability and uncertainty in the various input parameters, such as environmental exposure levels, fate and transport processes, etc.
Reference concentration Definition: An estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime. It can be derived from a NOAEL, LOAEL, or benchmark concentration, with uncertainty factors generally applied to reflect limitations of the data used. Generally used in EPA's noncancer health assessments. [Durations include acute, short-term, subchronic, and chronic and are defined individually in this glossary] Acronym: RfC
Reference dose Definition: An estimate (with uncertainty spanning perhaps an order of magnitude) of a daily oral exposure to the human population

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(including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime. It can be derived from a NOAEL, LOAEL, or benchmark dose, with uncertainty factors generally applied to reflect limitations of the data used. Generally used in EPA's noncancer health assessments. [Durations include acute, short-term, subchronic, and chronic and are defined individually in this glossary]. Acronym: RfD
Risk characterization Definition: Risk characterization (http://www.epa.gov/risk/risk-characterization.htm) examines how well the data support conclusions about the nature and extent of the risk from exposure to environmental stressors.
Risk description Definition: Risk description provides information important for interpreting the risk results and identifies a level for harmful effects on the plants and animals of concern in an ecological risk assessment.
Risk estimation Definition: Risk estimation is the combination of an exposure profiles and exposure-effects in an ecological risk assessment.
Sensitivity Definition: Differences in toxic response resulting from toxicodynamics differences and/or toxicokinetics differences. These differences can arise due to numerous biological factors such as lifestage (windows of enhanced sensitivity), genetic polymorphisms, gender, disease status, nutritional status, etc.
Slope factor

Term
Definition: An upper bound, approximating a 95% confidence limit, on the increased cancer risk from a lifetime exposure to an agent. This estimate, usually expressed in units of proportion (of a population) affected per mg/kg-day, is generally reserved for use in the low-dose region of the dose-response relationship, that is, for exposures corresponding to risks less than 1 in 100.
Stressor Definition: A stressor is any physical, chemical, or biological entity that can induce an adverse response. Stressors may adversely affect specific natural resources or entire ecosystems, including plants and animals, as well as the environment with which they interact.
Susceptibility Definition: Differences in risk resulting from variation in both toxicity response (sensitivity) and exposure (as a result of gender, lifestage, and behavior).
Uncertainty Definition: Uncertainty refers to our inability to know for sure - it is often due to incomplete data. For example, when assessing the potential for risks to people, toxicology studies generally involve dosing of sexually mature test animals such as rats as a surrogate for humans. Since we don't really know how differently humans and rats respond, EPA often employs the use of an uncertainty factor to account for possible differences. Additional consideration may also be made if there is some reason to believe that the very young are more susceptible than adults, or if key toxicology studies are not available.
Uncertainty/variability factor

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Definition: One of several, generally 10-fold, default factors used in operationally deriving the RfD and RfC from experimental data. The factors are intended to account for (1) variation in susceptibility among the members of the human population (i.e., inter-individual or intraspecies variability); (2) uncertainty in extrapolating animal data to humans (i.e., interspecies uncertainty); (3) uncertainty in extrapolating from data obtained in a study with less-than-lifetime exposure (i.e., extrapolating from subchronic to chronic exposure); (4) uncertainty in extrapolating from a LOAEL rather than from a NOAEL; and (5) uncertainty associated with extrapolation when the database is incomplete. Acronym: UFs
Variability Definition: This refers to the range of toxic response or exposure - for example, the dose that might cause a toxic response can vary from one person to the next depending on factors such as genetic differences, preexisting medical conditions, etc. Exposure may vary from one person to the next depending on factors such as where one works, time spent indoors or out, where one lives, how much people eat or drink, etc.
Vulnerability Definition: Differences in risk resulting from the combination of both intrinsic differences in susceptibility and extrinsic social stress factors such as low socioeconomic status, crime and violence, lack of community resources, crowding, access to health care, education, poverty, segregation, geography, etc.