**Section 302.501 Scope, Applicability, and Definitions**

a) Subpart E contains the Lake Michigan Basin water quality standards. These must be met in the waters of the Lake Michigan Basin as designated in 35 Ill. Adm. Code 303.443.

b) In addition to the definitions provided at 35 Ill. Adm. Code 301.200 through 301.444, and in place of conflicting definitions at Section 302.100, the following terms have the meanings specified for the Lake Michigan Basin:

"Acceptable daily exposure" or "ADE" means an estimate of the maximum daily dose of a substance that is not expected to result in adverse noncancerous effects to the general human population, including sensitive subgroups.

"Acceptable endpoints", for the purpose of deriving wildlife criteria, means acceptable subchronic and chronic endpoints that affect reproductive or developmental success, organismal viability or growth, or any other endpoint that is, or is directly related to, parameters that influence population dynamics.

"Acute to chronic ratio" or "ACR" is the standard measure of the acute toxicity of a material divided by an appropriate measure of the chronic toxicity of the same material under comparable conditions.

"Acute toxicity" means adverse effects that result from an exposure period that is a small portion of the life span of the organism.

"Adverse effect" means any deleterious effect to organisms due to exposure to a substance. This includes effects that are or may become debilitating, harmful, or toxic to the normal functions of the organism, but does not include non-harmful effects such as tissue discoloration alone or the induction of enzymes involved in the metabolism of the substance.

"Baseline BAF" for organic chemicals, means a bioaccumulation factor (BAF) that is based on the concentration of a freely dissolved chemical in the ambient water and takes into account the partitioning of the chemical within the organism; for inorganic chemicals, a BAF is based on the wet weight of the tissue.

"Baseline BCF" for organic chemicals, means a bioconcentration factor (BCF) that is based on the concentration of a freely dissolved chemical in the ambient water and takes into account the partitioning of the chemical within the organism; for inorganic chemicals, a BCF is based on the wet weight of the tissue.

"Bioaccumulative chemical of concern" or "BCC" is any chemical that has the potential to cause adverse effects and that, upon entering the surface waters, by itself or as its toxic transformation product, accumulates in aquatic organisms by a human health bioaccumulation factor greater than 1,000, after considering metabolism and other physiochemical properties that might enhance or inhibit bioaccumulation based on the methodology in Section 302.570. In addition, the half-life of the chemical in the water column, sediment, or biota must be greater than eight weeks. BCCs include the following substances:

Chlordane

4,4'-DDD; p,p'-DDD; 4,4'-TDE; p,p'-TDE

4,4'-DDE; p,p'-DDE

4,4'-DDT; p,p'-DDT

Dieldrin

Hexachlorobenzene

Hexachlorobutadiene; Hexachloro-1,3-butadiene

Hexachlorocyclohexanes; BHCs

alpha-Hexachlorocyclohexane; alpha-BHC

beta-Hexachlorocyclohexane; beta-BHC

delta-Hexachlorocyclohexane; delta-BHC

Lindane; gamma-Hexachlorocyclohexane; gamma-BHC

Mercury

Mirex

Octachlorostyrene

PCBs; polychlorinated biphenyls

Pentachlorobenzene

Photomirex

2,3,7,8-TCDD; Dioxin

1,2,3,4-Tetrachlorobenzene

1,2,4,5-Tetrachlorobenzene

Toxaphene

"Bioaccumulation" is the net accumulation of a substance by an organism as a result of uptake from all environmental sources.

"Bioaccumulation factor" or "BAF" is the ratio (in L/kg) of a substance's concentration in the tissue of an aquatic organism to its concentration in the ambient water, in situations where both the organism and its food are exposed and the ratio does not change substantially over time.

"Bioconcentration" means the net accumulation of a substance by an aquatic organism as a result of uptake directly from the ambient water through gill membranes or other external body surfaces.

"Bioconcentration Factor" or "BCF" is the ratio (in L/kg) of a substance's concentration in the tissue of an aquatic organism to its concentration in the ambient water, in situations where the organism is exposed through the water only and the ratio does not change substantially over time.

"Biota-sediment accumulation factor" or "BSAF" means the ratio (in kg of organic carbon/kg of lipid) of a substance's lipid-normalized concentration in the tissue of an aquatic organism to its organic carbon-normalized concentration in surface sediment, in situations where the ratio does not change substantially over time, both the organism and its food are exposed, and the surface sediment is representative of average surface sediment in the vicinity of the organism.

"Carcinogen" means a substance that causes an increased incidence of benign or malignant neoplasms, or substantially decreases the time to develop neoplasms, in animals or humans. The classification of carcinogens is determined by the procedures in Section II.A of Appendix C to 40 CFR 132, incorporated by reference in 35 Ill. Adm. Code 301.106.

"Chronic effect" means an adverse effect that is measured by assessing an acceptable endpoint, and results from continual exposure over several generations, or at least over a significant part of the test species' projected life span or life stage.

"Chronic toxicity" means adverse effects that result from an exposure period that is a large portion of the life span of the organism.

"Dissolved organic carbon" or "DOC" means organic carbon that passes through a 1 µm pore size filter.

"Dissolved metal" means the concentration of a metal that will pass through a 0.45 µm pore size filter.

"Food chain" means the energy stored by plants is passed along through the ecosystem through trophic levels in a series of steps of eating and being eaten, also known as a food web.

"Food chain multiplier" or "FCM" means the ratio of a BAF to an appropriate BCF.

"Linearized multi-stage model" means a mathematical model for cancer risk assessment. This model fits linear dose-response curves to low doses. It is consistent with a no-threshold model of carcinogenesis.

"Lowest observed adverse effect level" or "LOAEL" means the lowest tested dose or concentration of a substance that results in an observed adverse effect in exposed test organisms when all higher doses or concentrations result in the same or more severe effects.

"No observed adverse effect level" or "NOAEL" means the highest tested dose or concentration of a substance that results in no observed adverse effect in exposed test organisms where higher doses or concentrations result in an adverse effect.

"Octanol-water partition coefficient" or "Kow" is the ratio of the concentration of a substance in the n-octanol phase to its concentration in the aqueous phase in an equilibrated two-phase octanol-water system. For log Kow, the log of the octanol-water partition coefficient is a base 10 logarithm.

"Open Waters of Lake Michigan" means all of the waters within Lake Michigan in Illinois jurisdiction lakeward from a line drawn across the mouth of tributaries to Lake Michigan, but not including waters enclosed by constructed breakwaters.

"Particulate organic carbon" or "POC" means organic carbon that is retained by a 1 µm pore size filter.

"Relative source contribution" or "RSC" means the percentage of total exposure that can be attributed to surface water through water intake and fish consumption.

"Resident or indigenous species" means species that currently live a substantial portion of their life cycle or reproduce in a given body of water or that are native species whose historical range includes a given body of water.

"Risk associated dose" or "RAD" means a dose of a known or presumed carcinogenic substance in mg/kg/day that, over a lifetime of exposure, is estimated to be associated with a plausible upper bound incremental cancer risk equal to one in 100,000.

"Slope factor" or "q1\*" is the incremental rate of cancer development calculated by a linearized multistage model or another appropriate model. It is expressed in mg/kg/day of exposure to the chemical in question.

"Standard Methods" means "Standard Methods for the Examination of Water and Wastewater", available from the American Public Health Association.

"Subchronic effect" means an adverse effect, measured by assessing an acceptable endpoint, resulting from continual exposure for a period of time less than that deemed necessary for a chronic test.

"Target species" is a species to be protected by the criterion.

"Target species value" is the criterion value for the target species.

"Test species" is a species that has test data available to derive a criterion.

"Test dose" or "TD" is a LOAEL or NOAEL for the test species.

"Tier I criteria" are numeric values derived by use of the Tier I methodologies that either have been adopted as numeric criteria into a water quality standard or are used to implement narrative water quality criteria.

"Tier II values" are numeric values derived by use of the Tier II methodologies that are used to implement narrative water quality criteria. They are applied as criteria, have the same effect, and are subject to the same appeal rights as criteria.

"Trophic level" means a functional classification of taxa within a community that is based on feeding relationships. For example, aquatic green plants and herbivores comprise the first and second trophic levels in a food chain.

"Toxic unit acute" or "TUa" is the reciprocal of the effluent concentration that causes 50 percent of the test organisms to die by the end of the acute exposure period, which is 48 hours for invertebrates and 96 hours for vertebrates.

"Toxic unit chronic" or "TUc" is the reciprocal of the effluent concentration that causes no observable effect on the test organisms by the end of the chronic exposure period, which is at least seven days for Ceriodaphnia, fathead minnow, and rainbow trout.

"Uncertainty factor" or "UF" is one of several numeric factors used in deriving criteria from experimental data to account for the quality or quantity of the available data.

"USEPA" means the United States Environmental Protection Agency.

(Source: Amended at 47 Ill. Reg. 4437, effective March 23, 2023)