

3745-81-01      **Definitions.**

As used in Chapter 3745-81 of the Administrative Code:

- (A) "Action level" is the concentration of lead or copper in water specified in paragraph (C) of rule 3745-81-80 of the Administrative Code.
- (B) "Actual CT" means the CT value or the sum of CT values that is representative of the disinfection as determined in accordance with rule 3745-81-72 of the Administrative Code.
- (C) "Approved effective volume factor" means the ratio of the disinfectant contact time (T) to the theoretical contact time. The theoretical contact time is the lowest daily clearwell operating volume during the peak hourly flow divided by the peak hourly flow.
- (D) "Bag filters" means pressure-driven separation devices that remove particulate matter larger than one micrometer using an engineered porous filtration media. They are typically constructed of a non-rigid, fabric filtration media housed in a pressure vessel in which the direction of flow is from the inside of the bag to outside.
- (E) "Bank filtration" means a water treatment process that uses a well to recover surface water that has naturally infiltrated into ground water through a river bed or bank. Infiltration is typically enhanced by the hydraulic gradient imposed by a nearby pumping water supply or other well.
- (F) "Best available technology" or "BAT" means the best technology, treatment techniques, or other means which the director may approve, after examination for efficacy under field conditions and taking cost into consideration, for a public water system to use for achieving compliance with a maximum contaminant level. For synthetic organic chemicals, any BAT must be at least as effective as granular activated carbon.
- (G) "Cartridge filters" means pressure-driven separation devices that remove particulate matter larger than one micrometer using an engineered porous filtration media. They are typically constructed as rigid or semi-rigid, self supporting filter elements housed in pressure vessels in which flow is from the outside of the cartridge to the inside.
- (H) "'Chemical Abstracts Service' registry number" or "CAS number" means the hyphenated number assigned by the "American Chemical Society's Chemical Abstracts Service" to uniquely designate a chemical substance, regardless of the various names used for this substance.

- (I) "Coagulation" means a process using coagulant chemicals and mixing by which colloidal and suspended materials are destabilized and agglomerated into flocs.
- (J) "Coliform bacteria" means any of the enterobacteriaceae group, including all aerobic and facultative anaerobic gram-negative, nonspore-forming bacilli which utilize lactose with or without the formation of gas.
- (K) "Combined distribution system" means an interconnected distribution system consisting of the distribution systems of wholesale systems and of the consecutive systems that receive finished water. Combined distribution systems do not include consecutive systems which receive water from a wholesale system only on an emergency or intermittent basis. Combined distribution systems do not include wholesale systems which deliver water to a consecutive system only on an emergency or intermittent basis.
- (L) "Combined population" means the total number of individuals served by the public water system as a prime supplier plus those individuals served through a consecutive water system(s).
- (M) "Compliance cycle" means the nine-year cycle for monitoring during which public water systems shall monitor. Each compliance cycle consists of three three-year compliance periods. The first compliance cycle began January 1, 1993, and ended December 31, 2001. The second compliance cycle began January 1, 2002 and ends December 31, 2010.
- (N) "Compliance period" means one of the three periods of three consecutive calendar years within a compliance cycle. Each compliance cycle has three three-year compliance periods. Within the first compliance cycle, the first compliance period began January 1, 1993 and ended December 31, 1995.
- (O) "Comprehensive performance evaluation" or "CPE" means a thorough review and analysis of a treatment plant's performance-based capabilities and associated administrative, operation and maintenance practices. It is conducted to identify factors that may be adversely impacting a plant's performance. The comprehensive performance evaluation consists of at least the following components: assessments of plant performance; evaluation of major unit processes; identification and prioritization of performance limiting factors; assessment of the applicability of comprehensive technical assistance; and preparation of a CPE report.
- (P) "Confluent growth" means a continuous bacterial growth, covering the entire filtration area of a membrane filter, or a portion thereof, in which bacterial colonies are not discrete.

- (Q) "Consecutive water system" means a public water system that receives water from one or more public water systems, excluding intermittent or emergency interconnections. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems.
- (R) "Consumer notice," for the purpose of rules 3745-81-80 to 3745-81-90 of the Administrative Code, means notification of individual tap results from lead tap water monitoring in accordance with paragraph (D) of rule 3745-81-85 of the Administrative Code.
- (S) "Contaminant" means any physical, chemical, biological or radiological substance or matter in water.
- (T) "Conventional filtration treatment" means a series of processes including coagulation, flocculation, sedimentation, and filtration resulting in substantial removal of particles.
- (U) "Corrosion inhibitor" means a substance capable of reducing the corrosivity of water toward metal plumbing materials, especially lead and copper, by forming a protective film on the interior surface of those materials.
- (V) "Contact time" or "CT" means the mathematical product of a "residual disinfectant concentration" (C), which is determined before or at the first customer, and the corresponding "disinfectant contact time" (T).
- (W) "Direct filtration" means a series of processes, including coagulation and filtration but excluding sedimentation, resulting in substantial removal of particles from water.
- (X) "Director of environmental protection" or "director" includes an authorized representative of the director.
- (Y) "Disinfectant" means any oxidant, including but not limited to chlorine, chlorine dioxide, chloramines, and ozone added to water in any part of the treatment or distribution process, that is intended to kill or inactivate pathogenic microorganisms.
- (Z) "Disinfectant contact time" ("T" in CT calculations) means the time in minutes that it takes for water to move from the point of disinfectant application or the previous point of disinfectant residual measurement to a point before or at the point where residual disinfectant concentration (C) is measured.
- (AA) "Disinfection" means a process which inactivates pathogenic organisms in water by the addition of chemical oxidant(s) or equivalent agents.

- (BB) "Disinfection profile" means a summary of *Giardia lamblia* inactivation through the treatment plant.
- (CC) "District office" means the office of the Ohio environmental protection agency located in the district within which the subject water system is located.
- (DD) "Dose equivalent" means the product of the absorbed dose from ionizing radiation and such other factors as account for differences in biological effectiveness due to the type of radiation and its distribution in the body as specified by the "International Commission of Radiological Units and Measurements (ICRU)."
- (EE) "Dual sample set" means a set of two samples collected at the same time and same location, with one sample analyzed for TTHM and the other sample analyzed for HAA5. Dual sample sets are collected in accordance with paragraph (D) of rule 3745-81-24 of the Administrative Code.
- (FF) "Effective corrosion inhibitor residual", for the purpose of rules 3745-81-80 to 3745-81-90 of the Administrative Code, means a concentration sufficient to form a passivating film on the interior walls of a pipe.
- (GG) "Enhanced coagulation" means the addition of sufficient coagulant for improved removal of disinfection byproduct precursors by conventional filtration treatment.
- (HH) "Enhanced softening" means the improved removal of disinfection byproduct precursors by precipitative softening.
- (II) "Filter profile" means a graphical representation of individual filter performance based on continuous turbidity measurements or total particle counts versus time for an entire filter run, from startup to backwash inclusively, that includes an assessment of filter performance while another filter is being backwashed.
- (JJ) "Filtration" means a process for removing particles from water by passage through porous media.
- (KK) "Finished water" means water that is introduced into the distribution system of a public water system and is intended for distribution and consumption without further treatment, except as necessary to maintain water quality in the distribution system (e.g., booster disinfection, addition of corrosion control chemicals).
- (LL) "First-draw sample" means a one-liter sample of tap water, collected in accordance with paragraph (B)(2) of rule 3745-81-86 of the Administrative

Code, that has been standing in plumbing pipes at least six hours and is collected without flushing the tap.

(MM) "Flocculation" means a process which enhances agglomeration of particles into larger, more easily settleable particles through gentle stirring.

(NN) "Flowing stream" means a course of running water flowing in a definite channel.

(OO) "GAC10" means granular activated carbon filter beds with an empty-bed contact time of ten minutes based on average daily flow and a carbon reactivation frequency of every one hundred eighty days, except that the reactivation frequency for GAC10 used as a best available technology for compliance with paragraph (B) of rule 3745-81-12 of the Administrative Code shall be one hundred twenty days.

(PP) "GAC20" means granular activated carbon filter beds with an empty-bed contact time of twenty minutes based on average daily flow and a carbon reactivation frequency of every two hundred forty days.

(QQ) "Gross alpha particle activity" means the total radioactivity due to alpha particle emission as inferred from measurements on a dry sample.

(RR) "Gross beta particle activity" means the total radioactivity due to beta particle emission as inferred from measurements on a dry sample.

(SS) "Ground water" means any water below the surface of the earth in a zone of saturation which is not directly influenced by surface water, which is obtained through a well constructed in accordance with plans approved by the director under section 6109.07 of the Revised Code and Chapter 3745-9 of the Administrative Code, and which is free of biological contamination significant to human health.

(TT) "Ground water system" means a public water system which uses only ground water as its source of water.

(UU) "Haloacetic acids (five)" or "HAA5" means the sum of the concentrations in milligrams per liter of the haloacetic acid compounds (monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid), rounded to two significant figures after addition.

(VV) "Halogen" means one of the following chemical elements: chlorine, bromine or iodine.

- (WW) "High background count" or "HBC" means that the total number of bacterial colonies exceeds two hundred on a forty-seven-millimeter diameter membrane filter used for coliform detection.
- (XX) "Human consumption" means the ingestion or absorption of water or water vapor as the result of drinking, cooking, dishwashing, hand washing, bathing, showering, or oral hygiene.
- (YY) "Lake/reservoir" means a natural or man-made basin or hollow on the Earth's surface in which water collects or is stored that may or may not have a current or single direction of flow.
- (ZZ) "Large water system", for the purpose of rules 3745-81-80 to 3745-81-90 of the Administrative Code, means a public water system that serves more than fifty thousand persons.
- (AAA) "Lead service line" means a service line made of lead which connects a water main to a building inlet and any lead pigtail, gooseneck, or other fitting which is connected to such a lead line.
- (BBB) "Legionella" means a genus of bacteria, some species of which may cause Legionnaires disease.
- (CCC) "Locational running annual average" or "LRAA" means the average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters.
- (DDD) "Man-made beta particle and photon emitters" means all radionuclides emitting beta particles and/or photons listed in the maximum permissible body burdens and maximum permissible concentrations of radionuclides in air and water for occupational exposures, "NBS Handbook 69," except the daughter products of thorium-232, uranium-235 and uranium-238.
- (EEE) "Maximum contaminant level" or "MCL" means the maximum permissible level of a contaminant in water which is delivered to any user of a public water system.
- (FFF) "Maximum contaminant level goal" or "MCLG" means the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- (GGG) "Maximum residual disinfectant level" or "MRDL" means the highest level of disinfectant allowed under conditions specified in rule 3745-81-10 of the Administrative Code.

(HHH) "Medium water system", for the purpose of rules 3745-81-80 to 3745-81-90 of the Administrative Code, means a public water system that serves greater than three thousand three hundred and less than or equal to fifty thousand persons.

(III) "Membrane filtration" means a pressure or vacuum driven separation process in which particulate matter larger than one micrometer is rejected by an engineered barrier, primarily through a size-exclusion mechanism, and which has a measurable removal efficiency of a target organism that can be verified through the application of a direct integrity test. This definition includes the common membrane technologies of microfiltration, ultrafiltration, and reverse osmosis.

(JJJ) "Method detection limit" or "MDL" is the minimum concentration of a substance that can be measured and reported with ninety-nine per cent confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte.

(KKK) "Monitor" means the sampling of public drinking water, the submittal of sample(s) to a laboratory certified for the appropriate analysis, and the analysis for the contaminants or characteristics of the water.

(LLL) "New source" means:

- (1) A well that is located in a new well field;
- (2) A new well that is located in an existing well field for which the results of source water analysis conducted in accordance with rule 3745-9-09 or 3745-91-06 of the Administrative Code indicate the presence of any primary inorganic or radiological contaminant above eighty per cent of the MCL standard or any organic contaminant (except trihalomethanes) at detectable concentrations;
- (3) An intake that is located in a surface water body not previously used; or
- (4) A new intake that is located in a previously used surface water body for which the results of source water analysis conducted in accordance with rule 3745-91-06 of the Administrative Code indicate the presence of any primary inorganic or radiological contaminant above eighty per cent of the MCL standard or any organic contaminant (except trihalomethanes) at detectable concentrations.

(MMM) "Normal operating conditions" means the operational and treatment processes routinely used by a public water system which are representative of the practices under which water is typically delivered to consumers. Public

water systems required to collect samples during normal operating conditions shall not deliberately change distribution or treatment processes, or operating practices during or just prior to sample collection for the sole purpose of influencing sample results collected for compliance purposes. This includes but is not limited to the following examples for the collection of disinfection byproduct or total organic carbon samples: deliberately flushing the distribution system just prior to the collection of samples; temporarily performing enhanced coagulation or softening just prior to the collection of samples; deliberately reducing chlorine dosage just prior to the collection of samples; deliberately turning off pre-chlorination just prior to the collection of samples.

(NNN) "Optimal corrosion control treatment", for the purpose of rules 3745-81-80 to 3745-81-90 of the Administrative Code, means the corrosion control treatment that minimizes the lead and copper concentrations at users' taps while insuring that the treatment does not cause the water system to violate any national primary drinking water regulations.

(OOO) "Person" means an individual, corporation, company, association, partnership, the state, any political subdivision, agency, institution, or instrumentality thereof, or federal agency.

(PPP) "Picocurie" or "pCi" means that quantity of radioactive material producing two and twenty-two hundredths nuclear transformations per minute.

(QQQ) "Plant intake" means the works or structures at the head of a conduit through which water is diverted from a source (e.g., river or lake) into the treatment plant.

(RRR) "Point-of-entry treatment device" is a treatment device applied to the drinking water entering a house or building for the purpose of reducing the contaminants in the drinking water distributed through all, or a portion of, the house or building.

(SSS) "Point-of-use treatment device" is a treatment device applied to a single tap used for the purpose of reducing contaminants in drinking water at that one tap.

(TTT) "Point of disinfectant application" means a location where disinfectant is added to a water system, and water downstream of this location is protected from recontamination.

(UUU) "Presedimentation" means a preliminary treatment process used to remove gravel, sand and other particulate material from the source water through settling before the water enters the primary clarification and filtration processes in a treatment plant.

(VVV) "Public education" for the purpose of rules 3745-81-80 to 3745-81-90 of the Administrative Code, means delivery of educational materials, in accordance with paragraphs (A) and (B) of rule 3745-81-85 of the Administrative Code, when an action level is exceeded.

(WWW) "Public notification" means notification to persons served by a public water system of violations or other situations in accordance with rule 3745-81-32 of the Administrative Code.

(XXX) "Public water system" or "PWS" means a system which provides water for human consumption through pipes or other constructed conveyances, if such system has at least fifteen service connections or regularly serves an average of at least twenty-five individuals daily at least sixty days out of the year. Such term includes any collection, treatment, storage, and distribution facilities under control of the operator of such system and used primarily in connection with such system, any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system, and any water supply system serving an agriculture labor camp, as defined in section 3733.41 of the Revised Code. A public water system is either a "community water system" or a "noncommunity water system."

(1) "Community water system" or "CWS" means a public water system which serves at least fifteen service connections used by year-round residents or regularly serves at least twenty-five year-round residents.

(2) "Noncommunity water system" or "NCWS" means a public water system that is not a community water system.

(a) "Nontransient noncommunity water system" or "NTNCWS" means a public water system that is not a community water system and that regularly serves at least twenty-five of the same persons over six months per year.

(b) "Transient noncommunity water system" or "TNCWS" means a noncommunity public water system that does not regularly serve at least twenty-five of the same persons over six months of the year.

(YYY) "Radiation equivalent man" or "rem" means the unit of dose equivalent from ionizing radiation to the total body or any internal organ or organ system. A "millirem (mrem)" is one one-thousandth of a rem.

(ZZZ) "Required CT" means the CT value that is considered sufficient disinfection treatment to consistently and reliably achieve at least 99.9 per cent (3 log) inactivation and/or removal of *Giardia lamblia* cysts and at least

99.99 per cent (4 log) inactivation and/or removal of viruses as determined in accordance with rule 3745-81-72 of the Administrative Code.

(AAAA) "Residual disinfectant concentration" ("C" in CT calculations) means the concentration of disinfectant measured in milligrams per liter in a representative sample of water.

(BBBB) "Safe Drinking Water Act" or "SDWA" means the Safe Drinking Water Act, 88 Stat. 1660 (1974), 42 U.S.C. 300(f) and regulations adopted thereunder.

(CCCC) "Sampling point" means,

- (1) For groundwater systems, each entry point to the distribution system which is representative of each well after treatment, and
- (2) For surface water systems, each entry point to the distribution system after any application of treatment or in the distribution system at points representative of each source.

(DDDD) "Sanitary survey" means an onsite review to evaluate the adequacy of the water source, treatment, distribution system, finished water storage, pumps, pump facilities and controls, monitoring, reporting and data verification, system management and operation, and to review operator compliance with state requirements.

(EEEE) "Sedimentation" means a process for removal of solids before filtration.

(FFFF) "Service line sample" means a one-liter sample of water, collected in accordance with paragraph (B)(3) of rule 3745-81-86 of the Administrative Code, that has been standing for at least six hours in a service line.

(GGGG) "Significant deficiency" means a defect in the system that puts the system in violation of a drinking water requirement or that causes an unacceptable risk to the public's health.

(HHHH) "Single family structure", for the purpose of rules 3745-81-80 to 3745-81-90 of the Administrative Code, means a building constructed as a single-family residence that is currently used as either a residence or a place of business.

(IIII) "Slow sand filtration" means a process of passing raw water through a porous granular medium, at a rate of less than one hundred fifty gallons per day per square foot of sand area, with substantial removal of particles by physical and biological mechanisms.

(JJJJ) "Small water system", for the purpose of rules 3745-81-80 to 3745-81-90 of the Administrative Code, means a public water system that serves three thousand three hundred persons or fewer.

(KKKK) "Source water at the entry point to the distribution system" for the purpose of rules 3745-81-80 to 3745-81-90 of the Administrative Code, means finished water (as defined in this rule) or water that is introduced into the distribution system of a public water system and is intended for distribution and consumption without further treatment, except as necessary to maintain water quality in the distribution system (e.g., booster disinfection, addition of corrosion control chemicals).

(LLLL) "State primary drinking water rules" means rules of Chapter 3745-81 of the Administrative Code.

(MMMM) "Supplier of water" means any person who owns or operates a public water system.

(NNNN) "Surface water" means:

- (1) All water which is open to the atmosphere and subject to surface runoff,  
or
- (2) Ground water under the direct influence of water which is open to the atmosphere or subject to surface runoff, as indicated by,
  - (a) Significant occurrence of insects or other macroorganisms, algae, or large-diameter pathogens such as *Giardia lamblia* or *Cryptosporidium*, or
  - (b) The presence of biological contamination significant to human health,  
or
  - (c) Improper well construction or inadequate sanitary isolation radius, or
  - (d) Significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH which closely correlate to climatological or surface water conditions.

(OOOO) "Surface water system" means a public water system which uses surface water, in whole or in part, as its source of water.

(PPPP) "SUVA" means specific ultraviolet absorption at two hundred fifty-four nanometers. It is calculated by dividing a sample's ultraviolet absorption at a wavelength of two hundred fifty-four nanometers ( $UV_{254}$ ) [in reciprocal meters

(M<sup>-1</sup>)] by its concentration of dissolved organic carbon (DOC) [in milligrams per liter (mg/l)].

(QQQQ) "System with a single service connection" means a public water system which supplies drinking water to consumers via a single service line.

(RRRR) "Third party" means a team of persons conducting a comprehensive performance evaluation who are not employees of the public water system owner and who are independent of the public water system.

(SSSS) "Total trihalomethanes" or "TTHM" means the sum of the concentrations in milligrams per liter of the trihalomethane compounds trichloromethane (chloroform), dibromochloromethane, bromodichloromethane and tribromomethane (bromoform), rounded to two significant figures after addition.

(TTTT) "Treatment technique" means a method for treating water to achieve acceptable levels of the contaminants in lieu of establishing a maximum contaminant level.

(UUUU) "Treatment technique requirement" means a requirement of the state primary drinking water rules which specifies for a contaminant a specific treatment technique or techniques known to the director which leads to a reduction in the level of such a contaminant sufficient to comply with the requirements of this chapter.

(VVVV) "Trihalomethane" or "THM" means one of the family of organic compounds, named as derivatives of methane, wherein three of the four hydrogen atoms in methane are each substituted by a halogen atom in the molecular structure.

(WWWW) "Total organic carbon" or "TOC" means total organic carbon in milligrams per liter (mg/l) measured using heat, oxygen, ultraviolet irradiation, chemical oxidants, or combinations of these oxidants that convert organic carbon to carbon dioxide, rounded to two significant figures.

(XXXX) "Two-stage lime softening" means a process in which chemical addition and hardness precipitation occur in each of two distinct unit clarification processes in series prior to filtration.

(YYYY) "Volatile organic chemicals" or "VOCs" are the chemicals identified in paragraph (D) of rule 3745-81-12 of the Administrative Code.

(ZZZZ) "Waterborne disease outbreak" means the significant occurrence of acute or chronic infectious illness, epidemiologically associated with the ingestion of water from a public water system.

(AAAAA) "Wholesale system" means a public water system that treats source water as necessary to produce finished water and then delivers some or all of that finished water to another public water system. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems.

(BBBBB) "Virus" means a virus which is infectious to humans by waterborne transmission.

Effective: 07/24/2009

R.C. 119.032 review dates: 04/20/2009 and 07/24/2014

Promulgated Under: 119.03

Statutory Authority: 6109.04

Rule Amplifies: 6109.03, 6109.04

Prior Effective Dates: 12/27/78, 08/24/81, 05/22/89, 12/31/90, 09/13/93, 01/01/02, 08/03/04, 08/01/05