



Rules of
Department of Natural Resources
Division 60—Public Drinking Water Program
Chapter 2—Definitions

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**Title 10—DEPARTMENT OF
NATURAL RESOURCES
Division 60—Public Drinking
Water Program
Chapter 2—Definitions**

**10 CSR 60-2.010 Installation, Extension,
Testing and Operation of Public Water
Supplies**

(Rescinded October 11, 1979)

AUTHORITY: section 192.615, RSMo Supp. 1973. Original rule filed Sept. 21, 1973, effective Oct. 1, 1973. Rescinded: Filed May 4, 1979, effective Oct. 11, 1979.

10 CSR 60-2.015 Definitions

PURPOSE: This rule defines terms used in 10 CSR 60.

(1) The terms used in 10 CSR 60 shall have the meanings set forth in the Missouri Safe Drinking Water Act, the federal Safe Drinking Water Act and regulations, or this rule, unless the context of the term clearly requires otherwise. In the event of any conflict or inconsistency, the more stringent definition shall apply.

(2) Definitions.

(A) Terms beginning with the letter A.

1. Action level. The concentration of lead or copper in water which determines, in some cases, the treatment requirements, system modifications, public education or other requirements as specified by the department that a water system is required to complete.

2. Air-gap separation. A backflow prevention assembly consisting of a physical separation between the free-flowing discharge end of a public water system pipeline and an open or nonpressurized receiving vessel. An approved air-gap separation shall be at least twice the diameter of the system pipe measured vertically above the overflow rim of the vessel. In no case shall the distance be less than one inch (1").

3. Alpha particle. A particle identical with a helium nucleus, emitted from the nucleus of a radioactive element.

4. Applicant. The legal name of the public water system for purposes of 10 CSR-60.

5. Auxiliary intake. Any piping, connection or device whereby water may be secured from a source other than the primary source.

6. Auxiliary water system. Any supply or source of water other than the approved public water system.

(B) Terms beginning with the letter B.

1. Backflow. The undesirable reversal of flow of water or mixtures of water and other

liquids, gases or other substances into the public water system from any source(s).

2. Backflow hazard. Any facility which, because of the nature and extent of activities on the premises or the materials used in connection with the activities or stored on the premises, would present an actual or potential health hazard to customers of the public water system or would threaten to degrade the water quality of the public water system should backflow occur.

A. Class I backflow hazard. A backflow hazard which presents an actual or potential health hazard to customers of the public water system should backflow occur. A list of customer facilities, not all inclusive, considered to be Class I backflow hazards is included in 10 CSR 60-11.010.

B. Class II backflow hazard. A backflow hazard which would threaten to degrade the water quality of the public water system should backflow occur. A list of customer facilities, not all inclusive, considered to be Class II backflow hazards is included in 10 CSR 60-11.010.

3. Backflow prevention assembly. An assembly designed to prevent the reverse flow of water or other substances from a customer facility back into the public water distribution system. See also definitions of air-gap separation, double check valve and reduced pressure principle backflow prevention assembly.

4. Backflow prevention assembly tester. A person who utilizes recognized backflow prevention assembly testing procedures to determine whether or not an assembly is functioning properly. Requirements for backflow prevention assembly tester certification are in 10 CSR 60-11.

5. Best available technology. The best technology, treatment or other means which the department finds, after examination for efficacy under field conditions and not solely under laboratory conditions, are available (taking cost into consideration). For the purpose of setting maximum contaminant levels for synthetic organic chemicals, any best available technology must be at least as effective as granular activated carbon.

6. Beta particle. A particle, identical with an electron, emitted from the nucleus of a radioactive element.

7. Breakpoint chlorination. The point at which sufficient chlorine has been applied to water to satisfy the chlorine demand which should result in a total chlorine residual of at least seventy-five percent (75%) free available chlorine.

(C) Terms beginning with the letter C.

1. Certificate. The certificate of competency issued by the department stating that a person has met the requirements for the spec-

ified operator classification of the certification program under the provisions of 10 CSR 60-14.020.

2. Certificate of examination. A certificate issued to a person who passes a written examination but does not meet the experience requirements for the classification of examination taken.

3. Chief operator. The person designated by the owner of a public water system to have direct, on-site responsibility for the operation of a water treatment plant or water distribution system, or both.

4. Chloramines. All amino or imino groups in which the hydrogen has been replaced totally or in part by chlorine.

5. Class I backflow hazard. See backflow hazard.

6. Class II backflow hazard. See backflow hazard.

7. Coagulation. A process using coagulant chemicals and mixing by which colloidal and suspended materials are destabilized and agglomerated into flocs.

8. Combined chlorine residual. That portion of the total chlorine residual which is not free available chlorine.

9. Community water system. A public water system which serves at least fifteen (15) service connections and is operated on a year-round basis or regularly serves at least twenty-five (25) residents on a year-round basis.

10. Compliance cycle. The nine (9)-year calendar year cycle during which public water systems must monitor. Each compliance cycle consists of three (3), three (3)-year compliance periods. The first calendar year cycle begins January 1, 1993 and ends December 31, 2001; the second begins January 1, 2002 and ends December 31, 2010; and the third begins January 1, 2011 and ends December 31, 2019.

11. Compliance period. A three (3)-year calendar year period within a compliance cycle. Each compliance cycle has three (3), three (3)-year compliance periods. Within the first compliance cycle, the first compliance period runs from January 1, 1993 to December 31, 1995; the second from January 1, 1996 to December 31, 1998; and the third from January 1, 1999 to December 31, 2001.

12. Confluent growth. A continuous bacterial growth covering the entire filtration area of a membrane filter, or a portion of the area, in which bacterial colonies are not discrete.

13. Consolidated formations. Earth material which has been created by geological processes, cemented or compacted into a coherent or firm mass.



14. Containment. Protection of the public water system by installation of a department-approved backflow prevention assembly or air-gap separation at the user connection from the main service line(s).

15. Contaminant. Any physical, chemical, biological or radiological substances or matter in water including, but not limited to, those substances for which maximum contaminant levels are established by the department.

16. Conventional filtration treatment. A series of treatment processes including coagulation, flocculation, sedimentation and filtration resulting in substantial particulate removal.

A. Required treatment for groundwater systems under the direct influence of surface water. One (1) stage of treatment must be provided as follows: rapid mix, flocculation and sedimentation followed by filtration. Disinfection also shall be provided. Raw water quality characteristics may require additional treatment.

B. Required treatment for surface water systems. Two (2) stages of treatment must be provided as follows: primary rapid mix, flocculation and sedimentation followed by secondary rapid mix, flocculation and sedimentation, operated in series, followed by filtration and disinfection contact storage. Raw water quality characteristics may require additional treatment.

17. Corrosion inhibitor. 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.

18. Cross-connection. Any actual or potential connection or structural arrangement between a public water system and any other source or system through which it is possible to introduce into any part of the public water system any used water, industrial fluid, gas or substance other than the intended potable water with which the system is supplied. By-pass arrangements, jumper connections, removable sections, swivel or change-over devices and other temporary or permanent devices through which or because of which, backflow can or may occur are considered to be cross-connections.

19. CT. The product of the residual disinfectant concentration (C) in milligrams per liter (mg/l) determined before or at the first customer and the corresponding disinfectant contact time (T) in minutes (that is, C multiplied by T ($C \times T$)). (See also residual disinfectant concentration and disinfectant contact time.)

20. Customer. Any person who receives water from a public water system.

21. Customer service line. The pipeline from the public water system to the first tap, fixture, receptacle or other point of customer water use or to the first auxiliary water system or pipeline branch in a building.

22. Customer water system. All piping, fixtures and appurtenances, including auxiliary water systems, used by a customer to convey water on his/her premises.

(D) Terms beginning with the letter D.

1. Department. The Missouri Department of Natural Resources.

2. Department of Health. The Missouri Department of Health and Senior Services.

3. Director. The director of the Missouri Department of Natural Resources.

4. Disinfectant. Includes, but is 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.

5. Disinfectant contact time. The "T" in the equation CT. 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 as determined by a department-approved study as outlined in the *Missouri Guidance Manual for Surface Water System Treatment Requirements*, 1992.

6. Disinfection. A process which inactivates pathogenic organisms in water by chemical oxidants or equivalent agents.

7. Domestic or other nondistribution system plumbing problem. A coliform contamination problem in a public water system with more than one (1) service connection that is limited to the specific service connection from which the coliform-positive sample was taken.

8. Dose equivalent. The product of the absorbed dose from ionizing radiation and factors that account for difference 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).

9. Double check valve assembly. A backflow prevention assembly composed of two (2) single, independently acting, internally spring loaded, approved check valves including tightly closing resilient-seated shut-off valves located at each end of the assembly and fitted with properly located test cocks.

(E) Terms beginning with the letter E.

1. Effective corrosion inhibitor residual. For the purpose of the lead and copper provisions of these rules, a concentration sufficient

to form a protective film on the interior walls of a pipe.

2. Engineer. An individual registered as a professional engineer in Missouri.

3. Enhanced coagulation. The addition of sufficient coagulant for improved removal of disinfection byproduct precursors by conventional filtration treatment.

4. Enhanced softening. The improved removal of disinfection byproduct precursors by precipitative softening.

(F) Terms beginning with the letter F.

1. Facility. A single tract or contiguous tracts of land and any improvements on them, upon which one (1) or more service connections are located, and which, except for easements and public right-of-way, are wholly owned, leased or otherwise subject to the control of the customer.

2. Filter profile. 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.

3. Filtration. A process for removing particulate matter from water by passage through porous media.

4. Finished water storage facility. A tank, reservoir, or other man-made facility used to store potable water that will undergo no further treatment except residual disinfection.

5. First draw sample. A one (1) liter sample of tap water, collected in accordance with the lead and copper provisions of these rules only, that has been standing in plumbing pipes at least six (6) hours and is collected without flushing the tap.

6. Flocculation. A process to enhance the collection of smaller floc particles into larger, more easily settleable particles through gentle stirring by hydraulic or mechanical means.

(G) Terms beginning with the letter G.

1. GAC10. Granular activated carbon filter beds with an empty-bed contact time of ten (10) minutes based on average daily flow and a carbon reactivation frequency of every one hundred eighty (180) days.

2. Gross alpha particle activity. The total radioactivity due to alpha particle emission as inferred from measurements on a dry sample.

3. Gross beta particle activity. The total radioactivity due to beta particle emission as inferred from measurements on a dry sample.

4. Groundwater under the direct influence of surface water (GWUDISW). Any



water beneath the surface of the ground with either of the following:

A. Significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity or pH which closely correlate to climatological or surface water conditions. Direct influence must be determined for individual sources in accordance with criteria established by the department. The department's determination of direct influence may be used on site-specific measurements of water quality or documentation of well construction characteristics, or both, and geology with field evaluation; or

B. Significant occurrence of insects or other macroorganisms, algae or large-diameter pathogens such as *Giardia lamblia* or *Cryptosporidium*.

(H) Terms beginning with the letter H.

1. Haloacetic acids (five) (HAA5). 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 (2) significant figures after addition.

(I) Terms beginning with the letter I.

1. Initial Compliance Period. That period beginning January 1, 1993, for existing sources. For new water supply sources, the first full three (3)-year compliance period which begins no more than eighteen (18) months after the source is placed in service.

2. Iron removal. The removal of iron and manganese from a groundwater source with the treated water being exposed to aeration and chemical oxidation, pH adjustment, sedimentation and filtration.

(J) Terms beginning with the letter J. (*Reserved*)

(K) Terms beginning with the letter K. (*Reserved*)

(L) Terms beginning with the letter L.

1. Lead service line. A service line made of lead which connects the water main to the building inlet and any lead pigtail, gooseneck or other fitting which is connected to that lead line.

2. *Legionella*. A genus of bacteria some species of which have caused a type of pneumonia called Legionnaires disease.

3. Lime softening. The application of lime to reduce the concentrations of calcium and magnesium and, to a lesser extent, iron, manganese or radionuclides from source water.

(M) Terms beginning with the letter M.

1. Man-made beta particle and photon emitters. All radionuclides emitting beta particles, photons, or both, except the daughter products of thorium 232, uranium 235 and uranium 238, listed in the EPA

Implementation Guidance for Radionuclides, Appendix J.

2. Maximum contaminant level (MCL). The maximum permissible level, as established in 10 CSR 60-4, of a contaminant in any water which is delivered to any user of a public water system.

3. Maximum contaminant level goal (MCLG). A level of a contaminant in drinking water at which no known or anticipated adverse effect on the health of persons would occur and which allows an adequate margin of safety. MCLGs are nonenforceable health goals.

4. Maximum residual disinfectant level (MRDL). A level of a disinfectant that may not be exceeded at the consumer's tap without an unacceptable possibility of adverse health effects.

5. Maximum residual disinfectant level goal (MRDLG). The maximum level of a disinfectant added for water treatment at which no known or anticipated adverse effect on the health of persons would occur, and which allows an adequate margin of safety. MRDLGs are nonenforceable health goals and do not reflect the benefit of the addition of the chemical for control of waterborne microbial contaminants.

6. Maximum total trihalomethane potential (MTTHMP). The maximum concentration of total trihalomethanes produced in a given water containing a disinfectant residual after seven (7) days at a temperature of twenty-five degrees Celsius (25°C) or above.

7. Missouri Safe Drinking Water Law. The *Revised Statutes of Missouri*, sections 640.100 through 640.140.

(N) Terms beginning with the letter N.

1. Near the first service connection. At one (1) of the twenty percent (20%) of all service connections in the entire system that are nearest the water supply treatment facility, as measured by water transport time within the distribution system.

2. Nontransient noncommunity water system. A public water system that is not a community water system and that regularly serves at least twenty-five (25) of the same persons over six (6) months per year.

(O) Terms beginning with the letter O.

1. On-site inspection. An on-site review of the water source, facilities, equipment, operation and maintenance of a public water system for the purpose of evaluating the adequacy of that source, facilities, equipment, operation and maintenance for producing and distributing safe drinking water.

2. Operator. Any individual who operates or determines the methods of operating a water system, either directly or by order.

3. Optimal corrosion control treatment. For the purpose of the lead and copper provisions of these rules only, 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 other drinking water regulations.

(P) Terms beginning with the letter P.

1. Person. Any individual, partnership, co-partnership, firm, company, public or private corporation, association, homeowners' association, joint stock company, trust, estate, political subdivision or any agency, board, department or bureau of the state or federal government, or any other legal entity whatever, which is recognized by law as the subject of rights and duties.

2. Picocurie (pCi). The quantity of radioactive material producing 2.22 nuclear transformations per minute.

3. Point of entry treatment device (POE). A treatment device applied to the drinking water entering a house or other building for the purpose of reducing contaminants in the drinking water distributed throughout the house or building.

4. Point of use treatment device (POU). A treatment device applied to a single tap for the purpose of reducing contaminants in the drinking water at that tap.

5. Primary public water system. A public water system which obtains its source of water directly from a well, infiltration gallery, lake, reservoir, river, spring or stream.

6. Public water system. A system for the provision to the public of piped water for human consumption, if the system has at least fifteen (15) service connections or regularly serves an average of at least twenty-five (25) individuals daily at least sixty (60) days out of the year. The system includes any collection, treatment, storage or distribution facilities used in connection with the system. A public water system is either a community water system or a noncommunity water system.

(Q) Terms beginning with the letter Q.

1. Quarterly. Unless otherwise specified in 10 CSR 60, quarterly refers to the calendar quarters, January through March, April through June, July through September and October through December.

(R) Terms beginning with the letter R.

1. Radioactivity. The spontaneous, uncontrollable disintegration of the nucleus of an atom with the emission of particles and rays.

2. Rapid mix. The rapid dispersion of chemicals throughout the water to be treated by violent agitation.



3. Reduced pressure principle backflow prevention assembly. A device containing two (2) independently acting, internally spring loaded, approved check valves, together with a hydraulically operating, mechanically independent pressure differential relief valve located between the check valves and below the first check valve. The unit shall include properly located test cocks and tightly closing, resilient-seated shut-off valves at each end of the assembly.

4. Rem. 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 (1/1000) of a rem.

5. Repeat compliance period. Any subsequent compliance period after the initial compliance period.

6. Residual disinfectant concentration. The "C" in the equation CT. The concentration of disinfectant measured in milligrams per liter (mg/l) in a representative sample of water.

7. Rural. Shall not include any area in any city or town which has a population in excess of ten thousand (10,000) inhabitants according to the latest reliable population estimate for purposes of 10 CSR 60-13.010.

(S) Terms beginning with the letter S.

1. Sanitary survey. An on-site engineering inspection and review of a public water system—its supply source(s), treatment of supply source(s), treatment facilities and distribution system(s), for the purpose of evaluating their adequacy, reliability and safety for producing and distributing drinking water.

2. Secondary contaminant levels. Those contaminant levels established by the department for contaminants which may affect the taste, odor, color, staining and scale-forming tendencies of water.

3. Secondary public water system. A public water system which obtains all its water from an approved public water system(s), consists of a water distribution system and resells the water or is a carrier which conveys passengers in interstate commerce. Parts of a primary public water system may be classified as being a secondary public water system if they meet this definition and are physically separated from those parts served by the source for the primary public water system.

4. Sedimentation. A process for removal of solids before filtration by gravity separation.

5. Service connection. Any water line or pipe connected to a water distribution main or pipe for the purpose of conveying water to a point of use.

6. Service line sample. A one (1) liter sample of water, collected in accordance with the lead and copper provisions of these rules only, that has been standing for at least six (6) hours in a service line.

7. Single family structure. For the purpose of the lead and copper provisions of these rules only, a building constructed as a single family residence that is currently used as either a residence or a place of business.

8. Subdivision. Any land which is divided or proposed to be divided into fifteen (15) or more lots or tracts, whether contiguous or not, for the purpose of sale, lease, rental or construction of permanent structures on lots or tracts as part of a common plan; or where subdivided land is offered for sale or lease, or where structures are constructed by a single developer or a group of developers acting in concert and where the lots or land or structures are contiguous or known, designated or advertised as a common unit or by a common name. The lots or land tracts and structures shall be presumed, without regard to the number of lots or dwellings covered by each individual offering, as being offered for sale or lease as part of a common plan.

9. Supplier of water. Any person who owns, controls or operates a public water system.

10. Surface water. All water which is open to the atmosphere and subject to surface runoff; this includes all tributary streams and drainage basins, natural lakes and artificial reservoirs above the point of the water supply intake.

11. System with a single service connection. A system which supplies drinking water to consumers via a single service line.

(T) Terms beginning with the letter T.

1. Too numerous to count (TNTC). The total number of bacterial colonies exceeds two hundred (200) on a forty-seven millimeter (47 mm) diameter membrane filter used for coliform detection.

2. Total organic carbon (TOC). 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 (2) significant figures.

3. Total trihalomethanes (TTHM). The sum of the concentration in mg/l of the trihalomethane compounds, trichloromethane (chloroform), dibromochloromethane, bromodichloromethane and tribromomethane (bromoform), rounded to two (2) significant figures.

4. Transient noncommunity water system. A public water system that is not a community water system, which has at least fif-

teen (15) service connections or regularly serves an average of at least twenty-five (25) individuals daily at least sixty (60) days out of the year.

5. Treated water. Water which is handled or processed in any manner to change the physical, chemical, biological or radiological content and includes water exposed to the atmosphere by aeration.

6. Trihalomethane (THM). One (1) of the family of organic compounds, named as derivatives of methane, where three (3) of the four (4) hydrogen atoms in methane are each substituted by a halogen atom in the molecular structure.

(U) Terms beginning with the letter U.

1. Unconsolidated formations. Earth material (sand, gravel, silt, clay) which is uncemented and uncompacted and which has been deposited by a natural process. This material retains loose or relatively soft physical characteristics.

(V) Terms beginning with the letter V.

1. Virus. A virus of fecal origin which is infectious to humans by waterborne transmission.

(W) Terms beginning with the letter W.

1. Water distribution system. All piping, conduits, valves, hydrants, storage facilities, pumps and other appurtenances, excluding service connections, which serve to deliver water from a water treatment plant or water supply source to the public.

2. Water system. All sources from which water is derived for drinking or domestic use by the public, also all structures, conduits and appurtenances by means of which water for use is treated, stored or delivered to consumers, except service connections from water distribution systems to buildings and plumbing within or in connection with buildings served.

3. Water supply source. All sources of water supply including wells, infiltration galleries, springs, reservoirs, lakes, streams or rivers from which water is derived for public water systems, including the structures, conduits, pumps and appurtenances used to withdraw water from the source or to store or transport water to the water treatment facility or water distribution system.

4. Water treatment facility. A facility which uses specific processes such as sedimentation, coagulation, filtration, disinfection, aeration, oxidation, ion exchange, fluoridation or other processes which serve to add components or to alter or remove contaminants from a water supply source.

5. Waterborne disease outbreak. The significant occurrence of acute infectious illness associated with the ingestion of water as declared by the Department of Health.



AUTHORITY: section 640.100, RSMo Supp. 2002. Original rule filed May 4, 1979, effective Sept. 14, 1979. Amended: Filed April 14, 1981, effective Oct. 11, 1981. Amended: Filed July 11, 1986, effective Jan. 1, 1987. Amended: Filed June 2, 1988, effective Aug. 31, 1988. Amended: Filed Dec. 4, 1990, effective July 8, 1991. Amended: Filed July 12, 1991, effective Feb. 6, 1992. Amended: Filed March 31, 1992, effective Dec. 3, 1992. Amended: Filed Aug. 4, 1992, effective May 6, 1993. Amended: Filed Dec. 14, 1992, effective Aug. 9, 1993. Amended: Filed May 4, 1993, effective Jan. 13, 1994. Amended: Filed Feb. 1, 1996, effective Oct. 30, 1996. Amended: Filed Jan. 2, 1997, effective Dec. 29, 1997. Amended: Filed Dec. 15, 1999, effective Sept. 1, 2000. Amended: Filed March 17, 2003, effective Nov. 30, 2003.*

**Original authority: 640.100, RSMo 1939, amended 1978, 1981, 1982, 1988, 1989, 1992, 1993, 1995, 1996, 1998, 1999, 2002.*

10 CSR 60-2.020 Grants for Public Water Supply Districts, Sewer Districts, Rural Community Water Supply and Sewer Systems and Certain Municipal Sewer Systems

(Moved to 10 CSR 60-13.010)