# Rules of Department of Natural Resources

## Division 60—Public Drinking Water Program

### Chapter 2—Definitions

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 CSR 60-2.010 Installation, Extension, Testing and Operation of Public Water Supplies (Rescinded October 11, 1979)</td>
<td>3</td>
</tr>
<tr>
<td>10 CSR 60-2.015 Definitions</td>
<td>3</td>
</tr>
<tr>
<td>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)</td>
<td>7</td>
</tr>
</tbody>
</table>
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(Rescinded October 11, 1979)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,

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 con-
flict or inconsistency, the more stringent def-
nition 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, sys-
tem 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 pre-
vention assembly consisting of a physical se-
paration 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 mea-
sured 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 pub-
lic water system for purposes of 10 CSR 60.

5. Auxiliary intake. Any piping, connec-
tion 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 con-
nection 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 back-
flow 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 back-
flow 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 sepa-
ration, double check valve and reduced pres-
sure 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 back-
flow 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 pur-
pose of setting maximum contaminant levels
for synthetic organic chemicals, any best
available technology must be at least as effec-
tive as granular activated carbon.

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 avail-
able chlorine.

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 compli-
ance 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 dis-
crete.

13. Consolidated formations. Earth
material which has been created by geologi-
cal 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.


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 × 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.


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.


(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.


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 turbid-
ity, temperature, conductivity or pH which closely correlate to climatological or surface
water conditions. Direct influence must be
determined for individual sources in accor-
dance with criteria established by the depart-
ment. The department’s determination of
direct influence may be used on site-specific
measurements of water quality or documenta-
tion of well construction characteristics, or
both, and geology with field evaluation; or

B. Significant occurrence of insects or
other macroorganisms, algae or large-diam-
ter 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 peri-
od 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 aera-
tion 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 pneu-
monia 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 par-
ticles, 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 estab-
lished 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 drink-
ing 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
(MRD). A level of a disinfectant that may
do not be exceeded at the consumer’s tap with-
out 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 poten-
tial (MTTHMP). The maximum concentra-
tion of total trihalomethanes produced in a
given water containing a disinfectant residual
after seven (7) days at a temperature of twen-
ty-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 ser-
vice 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, opera-
tion and maintenance of a public water
system for the purpose of evaluating the ade-
quacy of that source, facilities, equipment,
operation and maintenance for producing and
distributing safe drinking water.

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

For the purpose of the lead and copper provi-
sions 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,
corporation, firm, company, public or priv-
ate corporation, association, homeowners’
association, joint stock company, trust,
estate, political subdivision or any agency,
board, department or bureau of the state or
governmental corporation, 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 contam-
ants 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 pub-
lic 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)
dividuals 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 sys-
tem 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 calen-
dar 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 milirem (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 transports water to the water treatment facility for coliform detection.

(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 (THM). The sum of the concentration in mg/l of the trihalomethane compounds, trichloromethane (chloroform), dibromochloromethane, bromodichloromethane and bromomethane (bromoforn), 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 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.

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 un cemented and uncompact ed 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.
Chapter 2—Definitions

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)