

TITLE 35: ENVIRONMENTAL PROTECTION  
SUBTITLE F: PUBLIC WATER SUPPLIES  
CHAPTER I: POLLUTION CONTROL BOARD

PART 601  
INTRODUCTION

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AUTHORITY: Implementing Section 17 and authorized by Section 27 of the Environmental Protection Act [415 ILCS 5/17 and 27].

SOURCE: Filed with Secretary of State January 1, 1978; amended at 2 Ill. Reg. 36, p. 72, effective August 29, 1978; amended at 3 Ill. Reg. 13, p. 236, effective March 30, 1979; amended and codified at 6 Ill. Reg. 11497, effective September 14, 1982; amended at 6 Ill. Reg. 14344, effective November 3, 1982; amended in R84-12 at 14 Ill. Reg. 1379, effective January 8, 1990; amended in R89-5 at 16 Ill. Reg. 1585, effective January 10, 1992; amended in R96-18 at 21 Ill. Reg. 6537, effective May 8, 1997; amended in R15-22 at 40 Ill. Reg. 6784, effective April 15, 2016, amended in R\_\_-\_\_ at \_\_ Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_.

**Section 601.101 General Requirements**

- a) Owners and official custodians of a public water supply in the State of Illinois shall provide, pursuant to the Act, Board Rules, and the Safe Drinking Water Act (42 USC 300f et seq.), continuous operation and maintenance of public water supply facilities so that the water shall be assuredly safe in quality, clean, adequate in quantity, and of satisfactory mineral characteristics for ordinary domestic consumption.
- b) Finished Water Quality
  - 1) The finished water delivered to any user at any point in the distribution system must contain no impurity at a concentration that may be hazardous to the health of the consumer or that would be excessively corrosive or otherwise deleterious to the water supply. Drinking water delivered to any user at any point in the distribution system must contain no impurity that could reasonably be expected to cause offense to the sense of sight, taste, or smell.

- 2) No substance used in treatment should remain in the water at a concentration greater than that required by good practice. A substance that may have a deleterious physiological effect, or one for which physiological effects are not known, must not be used in a manner that would permit it to reach the consumer.
- 3) Concentrations of constituents listed below should not be exceeded in the finished water.

<u>Contaminant</u>	<u>Secondary MCL</u>	<u>Noticeable Effects above the Secondary MCL</u>
<u>Aluminum</u>	<u>0.2 mg/L.*</u>	<u>colored water</u>
<u>Chloride</u>	<u>250 mg/L.</u>	<u>salty taste</u>
<u>Color</u>	<u>15 color units.</u>	<u>visible tint</u>
<u>Copper</u>	<u>1 mg/L.</u>	<u>metallic taste; blue-green staining</u>
<u>Fluoride</u>	<u>2.0 mg/L.</u>	<u>tooth discoloration</u>
<u>Foaming Agents</u>	<u>0.5 mg/L.</u>	<u>frothy, cloudy; bitter taste; odor</u>
<u>Iron</u>	<u>0.3 mg/L.</u>	<u>rusty color; sediment; metallic taste; reddish or orange staining</u>
<u>Manganese</u>	<u>0.05 mg/L.</u>	<u>black to brown color; black staining; bitter metallic taste</u>
<u>Odor</u>	<u>3. T.O.N. (Threshold Odor Number)</u>	<u>"rotten-egg", musty or chemical smell</u>
<u>Silver</u>	<u>0.1 mg/L.</u>	<u>skin discoloration; graying of the white part of the eye</u>
<u>Sulfate</u>	<u>250 mg/L.</u>	<u>salty taste</u>
<u>Total Dissolved Solids</u>	<u>500 mg/L.</u>	<u>hardness; deposits; colored water; staining; salty taste</u>

(Source: Amended at \_\_\_ Ill. Reg. \_\_\_\_, effective \_\_\_\_\_)

**Section 601.105 Definitions**

- a) For purposes of 35 Ill. Adm. Code 601, 602, 603 and 604~~607~~, unless a different meaning of a word or term is clear from the context:

"Act" means the Environmental Protection Act [415 ILCS 5].

"Agency" means the Illinois Environmental Protection Agency.

"Air gap" means the unobstructed vertical distance through the free atmosphere between the water discharge point and the flood level rim of the receptacle.

"Atmospheric vacuum breaker" means a device designed to admit atmospheric pressure into a piping system whenever a vacuum is caused on the upstream side of the receptacle.

"Aquifer Property Data" means the porosity, hydraulic conductivity, transmissivity and storage coefficient of an aquifer, head and hydraulic gradient.

"Board" means the Illinois Pollution Control Board.

"Boil Order" means a notice to boil all drinking and culinary water for at least five minutes before use, issued by the proper authorities to the consumers of a public water supply affected, whenever the water being supplied may have become microbiologically contaminated.

"Certified Laboratory" means any laboratory certified pursuant to Section 4(o) of the Act, or certified by USEPA for the specific parameters to be examined.

"Chlorine"

"Chlorine Demand" means the difference between the amount of chlorine applied to a given water and the amount of total available chlorine remaining at the end of the contact period. All test conditions (contact time, pH and temperature) must be given, expressing the chlorine demand in a given water.

"Combined Chlorine" means the reaction product formed when chlorine has reacted with ammonia to form chloramines.

"Free Chlorine" means the residual chlorine existing in water as the sum of hypochlorous acid and hypochlorite ion.

"Total Chlorine" means the sum of the free chlorine and the combined chlorine.

"Community Water Supply" or "CWS" means a public water supply which serves or is intended to serve at least 15 service connections used by residents or regularly serves at least 25 residents. (Section 3.145 of the Act)

"Confined Geologic Formations" are geologic water bearing formations protected against the entrance of contamination by other geologic formations.

"Conventional filtration treatment" means a series of processes including coagulation, flocculation, sedimentation, and filtration resulting in substantial particulate removal.

"Cross-connection"

~~"Cross-connection" means any physical connection or arrangement between two otherwise separate piping systems where flow from one system to the other is possible, one of which contains potable water that contains water of unknown or questionable safety, steam, or one or more gases; chemicals or other substances when flow from one system to the other is possible.~~

~~"Direct Cross-connection" means a cross-connection formed when a piping system containing potable water is physically joined to another piping system containing water of unknown or questionable safety, steam, or one or more gases, chemicals or other substances.~~

~~"Indirect Cross-connection" means a cross-connection formed when water of unknown or questionable safety, steam or one or more gases, chemicals or other substances from one piping system can be forced, drawn by vacuum or otherwise introduced into another piping system containing potable water.~~

"CT" or "CT<sub>calc</sub>" is the product of "residual disinfectant concentration" (RDC or C) in mg/l determined before or at the first customer, and the corresponding "disinfectant contact time" (T) in minutes. If a supplier applies disinfectants at more than one point prior to the first customer, it must determine the CT of each disinfectant sequence before or at the first customer to determine the total percent inactivation or "total inactivation ratio." In determining the total inactivation ratio, the supplier must determine the RDC of each disinfection sequence and corresponding contact time before any subsequent disinfection application points.

"Disinfectant" means any agent, 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.

*"Groundwater" means underground water which occurs within the saturated zone and geologic materials where the fluid pressure in the pore space is equal to or greater than atmospheric pressure. (Section 3.210 of the Act)*

"DPD method" means an analytical method for determining chlorine residual utilizing the reagent DPD (n-diethyl-p-phenylenediamine).

"Effective external linkage" is the ability of a water system to communicate and exchange information with water customers, regulators, technical and financial assistance organizations, and other entities that routinely interact with the water system.

"Head" means the sum of the elevation head, pressure head and velocity head at a given point in an aquifer.

"Hydraulic Conductivity" means the rate of flow in gallons per day (gpd) through a cross section of one square foot (ft<sup>2</sup>) under a unit hydraulic gradient (gpd/ft<sup>2</sup>).

"Hydraulic Gradient" means the rate of change of total head per unit distance of flow in a given direction.

"Infrastructure" means all mains, pipes and structures through which water is obtained and distributed to the public, including wells and well structures, intakes and cribs, pumping stations, treatment plants, reservoirs, storage tanks and appurtenances, collectively or severally, actually used or intended to be used for the purpose of furnishing water for drinking or general domestic use.

"Interconnection" means a physical connection between two or more community water supply systems.

"Maximum Average Daily Demand" or "Maximum Demand" means highest average daily production over seven consecutive days ~~the maximum seven day production period.~~

"New Community Water Supply" means, beginning after October 1, 1999, all new community water supplies and those water supplies that expand their infrastructure to serve or intend to serve at least 15 service connections

used by residents or regularly serves at least 25 residents. Any water supply not currently a community water supply that adds residents so that the total served is 25 residents or more without constructing additional infrastructure will become a community water supply, but will not be required to demonstrate capacity under 35 Ill. Adm. Code 602.103 unless the community water supply is on restricted status as required by 35 Ill. Adm. Code 602.106.

"Non-community Water Supply" means *a public water supply that is not a community water supply.* (Section 3.145 of the Act)

"Official Custodian" means *an individual who is an officer of an entity that is the owner of a community water supply and acts as the owner's agent in matters concerning the community water supply.* [415 ILCS 45/9.4]

"Porosity" means the percentage of the bulk volume of a rock or soil that is occupied by interstices, whether isolated or connected, as defined by the ratio of the pore volume to the total volume of a representative sample of the medium.

*"Public Water Supply" or "PWS" means all mains, pipes and structures through which water is obtained and distributed to the public, including wells and well structures, intakes and cribs, pumping stations, treatment plants, reservoirs, storage tanks and appurtenances, collectively or severally, actually used or intended for use for the purpose of furnishing water for drinking or general domestic use and which serve at least 15 service connections or which regularly serve at least 25 persons at least 60 days per year.* (Section 3.28 of the Act)

"Responsible Operator in Charge" means *an individual who is designated as a Responsible Operator in Charge of a community water supply pursuant to Section 1 of the Public Water Supply Operations Act [415 ILCS 45/1] and 35 Ill. Adm. Code 603.* [415 ILCS 45/9.6]

"Satellite supply" means any community water supply that: purchases all finished water from another community water supply; does not provide any treatment other than chlorination; and distributes finished water to the consumers.

"Sell Water" means to deliver or provide potable water, obtained from a public water supply subject to these regulations, to the consumer, who is then individually or specifically billed for water service, or where any monetary assessment is levied or required and specifically used for water service. Water supply facilities owned or operated by political subdivisions, homeowners associations, and not-for-profit associations, as well as privately owned utilities regulated by the Illinois Commerce

Commission, are considered to sell water whether or not a charge is specifically made for water.

"SEP" means special exception permit.

"Service Connection" is the opening, including all fittings and appurtenances, at the water main through which water is supplied to the user through a water service line.

"Storage Coefficient" means the volume of water an aquifer releases from or takes into storage per unit surface area of the aquifer per unit change in head.

"Surface Water" means all tributary streams and drainage basins, including natural lakes and artificial reservoirs, which may affect a specific water supply above the point of water supply intake.

"Surface Water Supply Source" means any surface water used as a water source for a public water supply.

"Supply" means a community water supply.

"Transmissivity" means the rate in gallons per minute (gpm), at which water is transmitted horizontally through a unit width by the total saturated thickness of an aquifer, in feet (ft), under a unit hydraulic gradient (gpm/ft).

"Water Main" means any pipe for the purpose of distributing potable water that serves or is accessible to more than one property, dwelling or rental unit and is exterior to buildings.

"Water Service Line" means any pipe from the water main or source of potable water supply that serves or is accessible to not more than one property, dwelling or rental unit of the user.

"Well Hydraulics" means equations that are applied to understand the effect that a pumping well structure has on inducing the movement of water through permeable rock formations and certain aquifer properties to determine the rate of withdrawal of the well. This term is inclusive of equations that quantify wellbore skin effects/well loss.

"Wellhead Protection Area" or "WHPA" means the surface and subsurface recharge area surrounding a community water supply well or well field, delineated outside of any applicable setback zones (pursuant to Section 17.1 of the Act) established pursuant to Illinois' Wellhead Protection Program, through which contaminants are reasonably likely to move toward the well or well field.

"Wellhead Protection Measures" means management practices needed to mitigate existing and future threats to the water quality within the delineated WHPA.

"Wellhead Protection Program" means the Wellhead Protection Program for the State of Illinois, approved by USEPA under section 1428 of the SDWA (42 USC 300h-7).

- b) Terms not specifically defined in subsection (a), will have the meanings ascribed in 35 Ill. Adm. Code 611.
- c) Terms not specifically defined in subsections (a) or (b) will have the meanings specified in The Water Dictionary, incorporated by reference in Section 601.115.

(Source: Amended at \_\_\_ Ill. Reg. \_\_\_\_, effective \_\_\_\_\_)

### **Section 601.115 Incorporations by Reference**

- a) Abbreviations and Short-name Listing of References. The following names and abbreviated names are used in this Chapter I to refer to materials incorporated by reference:

"ANSI" means those standards published by American National Standards Institute (ANSI).

"ASME" means the American Society of Mechanical Engineers (AMSE).

"ASTM" means those standards published by American Society for Testing and Materials (ASTM).

"AWWA" means those standards published by the American Water Works Association.

"NSF" means those standards published by the National Science Foundation International.

"Recommended Standards" means "Recommended Standards for Water Works – Policies for the Review and Approval of Plans and Specifications for Public Water Supplies".

- b) The Agency incorporates the following materials by reference:

ASTM. American Society for Testing and Materials, 100 Barr Harbor Drive, PO Box C700, West Conshohocken PA 19428-2959, (610)832-9500.

ASTM C 76 -16 Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe, approved November 1, 2016.

ASTM C361 -16 Standard Specification for Reinforced Concrete Low-Head Pressure Pipe, approved September 1, 2016.

ASTM C443 -12 Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets, approved September 1, 2012.

ASTM D 1784-11, Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds, approved May 1, 2011.

ASTM D 1785-15 Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120, approved August 1, 2015.

ASTM D 2241-09, Standard Specification for Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series), approved December 1, 2009.

ASTM D 2464 - 15 Standard Specification for Threaded Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80, approved March 1, 2015.

ASTM D 2466 -15 Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40, approved March 1, 2015.

ASTM D 2467-15 Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80 approved March 1, 2015.

ASTM D 2564 -12 Standard Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems, approved August 1, 2012.

ASTM D 3139 -11 Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals, February 1, 2011.

ASTM F 437 -15 Standard Specification for Threaded Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80, approved March 1, 2015.

ASTM F 438- 15 Standard Specification for Socket-Type Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule, 40 approved March 1, 2015.

ASTM F 439 - 13 Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80, approved August 2013.

ASTM F 441/F 441M – 15 Standard Specification for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe, Schedules 40 and 80, approved August 1, 2015.

ASTM F 442/F 442M -13 Standard Specification for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe (SDR-PR), approved June 1, 2013.

ASTM F 477 -14 Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe, approved September 15, 2014.

ASTM F 493-14 Standard Specification for Solvent Cements for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe and Fittings, approved November 1, 2014.

ASTM F 1216- 16 Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube, approved August 1, 2016.

ASME. American Society of Mechanical Engineers, Two Park Avenue, New York NY 10016, (800) 843-2763, [www.asme.org](http://www.asme.org).

ASME BPVC-VIII-1-2015, Boiler & Pressure Vessel Code (BPVC), Section VIII—Rules for Construction of Pressure Vessels, Division 1: Rules for Construction and Pressure Vessels, 2015.

AWWA. American Water Works Association et al., 6666 West Quincy Ave., Denver CO 80235, (303)794-7711.

~~ANSI~~AWWA A100-06, Water Wells, approved February 2, 2006, effective August 1, 2006.

~~ANSI~~AWWA B100-09, Granular Filter Material, approved January 25, 2009, effective March 1, 2010.

~~ANSI~~AWWA C151/A21.51-09, Ductile-Iron Pipe, Centrifugally Cast, approved January 25, 2009, effective September 1, 2009.

~~ANSI~~AWWA C200-12, Steel Water Pipe, 6 In. (150 mm) and Larger, approved June 10, 2012, effective September 1, 2012.

~~ANSI~~AWWA C301-07, Prestressed Concrete Pressure Pipe, Steel-Cylinder Type, approved January 21, 2007, effective June 1, 2007.

~~ANSI~~AWWA C651-05, Disinfecting Water Mains, approved January 16, 2005, effective June 1, 2005.

~~ANSI~~AWWA C652-11, Disinfection of Water Storage Facilities, approved June 12, 2011, effective October 1, 2011.

~~ANSI~~AWWA C653-03, Disinfection of Water Treatment Plants, approved January 19, 2003, effective June 1, 2003.

~~ANSI~~AWWA C654-03, Disinfection of Wells, approved January 19, 2003, effective November 1, 2003.

AWWA C900-07 Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 12 In. (100 mm Through 300 mm), for Water Transmission and Distribution, 2007.

~~ANSI~~AWWA C905-10, Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 14 In. Through 48 In. (350 mm Through 1,200 mm), approved January 17, 2010, effective April 1, 2010.

AWWA C906-07 Polyethylene (PE) Pressure Pipe and Fittings, 4 In. (100 mm) Through 63 In. (1,600 mm) for Water Distribution and Transmission, 2007.

AWWA C907-12 Injection-Molded Polyvinyl Chloride (PVC) Pressure Fittings, 4 In. Through 12 In. (100 mm Through 300 mm), for Water, Wastewater, and Reclaimed Water Service, effective March 1, 2012.

AWWA C909 -09 Molecularly Oriented Polyvinyl Chloride (PVCO) Pressure Pipe, 4 In. through 24 In. (100 mm through 600 mm) for Water, Wastewater, and Reclaimed Water Service, effective March 1, 2010.

~~ANSI~~AWWA D100-11, Welded Carbon Steel Tanks for Storage, approved January 23, 2011, effective July 1, 2011.

~~ANSI~~AWWA D103-09, Factory Coated Bolted Carbon Steel Tanks for Water Storage, approved January 25, 2009, effective November 1, 2009.

~~ANSI~~AWWA D107-10, Composite Elevated Tanks for Water Storage, approved January 17, 2010, effective December 1, 2010.

"The Water Dictionary", 2<sup>nd</sup> Edition, 2010.

The Chlorine Institute, 1300 Wilson Boulevard, Suite 525, Arlington VA, 22209,  
(703) 894-4140, pubs@CL2.com.

Pamphlet 6: Piping Systems for Dry Chlorine, Edition 16, March 2013.

NSF. National Sanitation Foundation International, 3475 Plymouth Road, PO Box 130140, Ann Arbor MI 48113-0140, (734)769-8010.

NSF/ANSI 14 -2012 Plastics Piping System Components and Related Materials, March 2013.

NFS/ANSI 60-2013 Drinking Water Treatment Chemicals – Health Effects, April 2014.

NSF/ANSI 61-2013 Drinking Water System Components – Health Effects, March 2014.

NSF/ANSI 372-2011 Drinking Water System Components—Lead Content, July 2013

"Recommended Standards for Water Works – Policies for the Review and Approval of Plans and Specifications for Public Water Supplies", 2012 Edition, Great Lakes – Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, Health Research Inc., Health Education Services Division, PO Box 7126, Albany NY 12224, (518)439-7286.

"Standard Specifications for Water and Sewer Main Construction in Illinois", 7<sup>th</sup> Edition, 2014, Illinois Society of Professional Engineers, 100 East Washington Street, Springfield IL 62701, (217)544-7424.

USEPA, NSCEP. United States Environmental Protection Agency, National Service Center for Environmental Publications, P.O. Box 42419, Cincinnati, OH 45242-0419 (accessible on-line and available by download from <http://www.epa.gov/nscep/>)

Disinfection Profiling and Benchmarking Guidance Manual, August 1999, EPA 815-R-99-013

- c) No later amendments to or editions of the materials listed in subsection (b) are incorporated.

(Source: Amended at \_\_\_ Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)