

CROSS CONNECTION REGULATION

FORT WAYNE WATER UTILITY

Fort Wayne, Indiana

September 25, 1974

CROSS CONNECTION REGULATION
FORT WAYNE WATER UTILITY
CITY UTILITIES
FORT WAYNE, INDIANA

Section I. Objectives

The objectives of this regulation are:

- A. To provide for the protection of the municipality's potable water distribution system from contamination, or the potential of contamination, by isolating within its customers' private systems any contaminants or pollutants which could, under adverse conditions, backflow through uncontrolled cross-connections into the public water distribution system, and
- B. Provide for the maintenance of a continuing program of cross-connection control which will systematically and efficiently prevent or control all existing or potential cross-connections which may be installed in customers' systems in the future.

Section II. Definitions

The following definitions shall apply to the various terms used in this regulation:

A. Air-Gap Separation.

The term "air-gap separation" means a physical separation between the free-flowing discharge and of a potable water supply pipeline and an open or non-pressure receiving vessel. An "approved air-gap separation" shall be at least double the diameter of the supply pipe measured vertically above the top rim of the vessel, in no case less than 1 inch, permanently supported to ensure that the minimum air-gap is maintained.

B. Approved.

- 1. The term "approved" as herein used in reference to a water supply means a water supply that has been approved by the health agency having jurisdiction.
- 2. The term "approved" as herein used in reference to air-gap separation, a reduced pressure principle backflow prevention device, a double check valve assembly or other backflow prevention device or method means an approval, as certified by the Utility's Chief Water Engineer.

C. Backflow.

The term "backflow" means the flow of water or other liquids, mixtures, gases or other substances into the distribution pipes of a potable supply of water from any source or sources other than the intended source.

D. Backflow Prevention Devices – Approved.

The term “approved backflow prevention device” means a device that has been examined and approved by the Fort Wayne Water Utility. The approval of backflow prevention devices by the Utility will be dependent on a favorable report by an “approved testing laboratory” and the Utility’s Chief Water Engineer.

E. Backflow Prevention Device – Type.

A “backflow prevention device” means any effective device, method or construction used to prevent backflow into a potable water system. The type of device to be used shall be compatible with the degree of hazard.

F. Backflow Prevention Device Tester – Certified.

The term “certified backflow prevention device tester” means a person who has proven his competency to the satisfaction of the Utility. Each person who is certified to make tests or to repair, overhaul and make reports on backflow prevention devices shall be completely familiar with applicable laws, rules and regulations and shall have a least two years of experience in plumbing or pipe fitting or have other similar experience which, in the opinion of the Utility, qualifies him.

G. Backsiphonage.

“Backsiphonage” means a form of backflow due to a negative or sub-atmospheric pressure or a drop in line pressure that produces a reverse pressure gradient within a water system.

H. Check Valve – Approved.

The term “approved check valve” means a check valve that is drip-tight in the normal direction of flow when the inlet pressure is one pound per square inch (p.s.i.) and the outlet pressure is zero. The check valve shall permit no leakage in a direction opposite to the normal flow. The closure element (e.g., Clapper) shall be internally weighted or otherwise internally loaded to promote rapid and positive closure.

I. Consumer or Customer.

The term “consumer or customer” means the owner or operator of a private water system receiving a supply from the Fort Wayne Water Utility.

J. Contamination.

“Contamination” means an impairment of the quality of the water by sewage or industrial fluids or waste to a degree which may create a hazard to the public health through poisoning or through the spread of disease.

K. Cross-Connection.

A “cross-connection” means an actual or potential connection or structural arrangement between a public or a consumer’s potable water system and any other source or system through which it is possible to introduce into any part of the potable 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.

L. Cross-Connection – Point Of.

The term “point of cross-connection” means the specific point or location in a public or a consumer’s potable water system where a cross-connection exists.

M. Double Check Valve Assembly.

The term “double check valve assembly” means an assembly composed of two single, independently acting, approved check valves, including tightly closing shut-off valves located at each end of the assembly and suitable connections for testing the water-tightness of each check valve.

N. Hazard – Degree Of.

The term “degree of hazard” shall be derived from the evaluation of a health, system, plumbing or pollutional hazard.

O. Hazard – Health.

The term “health hazard” means an actual or potential threat of contamination or pollution of a physical or toxic nature to the public potable water system or the consumer’s potable water system to such a degree or intensity that there would be a danger to health.

P. Hazard – Plumbing.

The term “plumbing hazard” means a plumbing type cross-connection in a consumer’s potable water system that has not been properly protected by a vacuum breaker, air-gap separation or other device. Unprotected plumbing type cross-connections are considered to be a health hazard. They include, but are not limited to, cross-connections to toilets, sinks, lavatories, wash trays, domestic washing machines and lawn sprinkling systems. Plumbing type cross-connections can be located in many types of structures, including homes, apartment houses, hotels and commercial and industrial establishments.

Q. Hazard – Pollutional.

The term “pollutional hazard” means an actual or potential threat to the physical properties of the water system or the potability of the public or the consumer’s potable water system but which would not constitute a health or system hazard, as defined. The maximum degree or intensity of pollution to

which the potable water system could be degraded under this definition would cause a nuisance or be aesthetically objectionable or could cause minor damage to the system or its appurtenances.

R. Hazard – System.

The term “system hazard” means an actual or potential threat of sever danger to the physical properties of the public or the consumer’s potable water system or of a pollution or contamination which would have a protracted effect on the quality of the potable water in the system.

S. Health Agency.

The term “health agency” means the health authority having jurisdiction, Federal, State or local.

T. Hospital.

The term “hospital” shall include, but not be limited to, any institution, place, building, or agency which maintains and operates organized facilities for one or more persons for the diagnosis, care, and treatment of human illness, convalescence and including care during and after pregnancy, or which maintains and operates organized facilities for any such purpose, and to which persons may be admitted. The term shall also include sanitariums, nursing homes, maternity homes, surgical clinics, etc.

U. Industrial Fluids.

The term “industrial fluids” means any fluid or solution which may be chemically, biologically or otherwise contaminated or polluted in a form or concentration such as would constitute a health, system, pollutional or plumbing hazard if introduced into an approved water supply. This may include, but not be limited to, polluted or contaminated used waters; all types of process waters and “used waters” originating from the public potable water system which may deteriorate in sanitary quality; chemicals in fluid form; plating acids and alkalies; circulated cooling waters connected to an open cooling tower and/or cooling waters that are chemically or biologically treated or stabilized with toxic substances; contaminated natural waters such as from wells, springs, streams, rivers, bays, harbors, seas, irrigation canals or systems, etc; oils, gases, glycerine, paraffines, caustic and acid solutions and other liquid and gaseous fluids used in industrial or other processes or for fire fighting purposes.

V. Laboratory – Approved Testing.

The term “approved testing laboratory” means a laboratory acceptable to the Fort Wayne Water Utility that is properly staffed and equipped with pumps, meters, measuring devices, etc., to fully test and evaluate a backflow prevention device for design, materials, construction and operation. As used herein, the term “approved testing laboratory” is one which is equivalent to the Foundation for Cross-Connection Control Research of the University of

Southern California. Other testing laboratories may be approved by the Utility's Chief Water Engineer when found to be properly qualified.

W. Piping System – Consumer's.

The term "consumer's piping system" shall mean any system used by the consumer for transmission of or to confine or store any fluid, solid or gaseous substance other than an approved water supply. Such a system would include all pipes, conduits, tanks, receptacles, fixtures, equipment and appurtenances used to produce, convey or store substances which are or may be polluted or contaminated.

X. Pollution.

"Pollution" shall mean an impairment of the quality of the water to a degree which does not create an actual hazard to the public health but which does adversely and unreasonably affect such waters for domestic use.

Y. Reduced Pressure Principle Backflow Prevention Device.

The term "reduced pressure principle backflow prevention device" shall mean a device containing within its structure a minimum of two independently acting, approved check valves, together with an automatically operating pressure differential relief valve located between the two check valves. The first check valve reduces the supply pressure a predetermined amount so that during normal flow and at cessation of normal flow the pressure between the checks shall be less than the supply pressure. In case of leakage of either check valve, the differential relief valve, by discharging into the atmosphere, shall operate to maintain the pressure between the checks less than the supply pressure. The unit shall include tightly closing shut-off valves located at each end of the device and each device shall be fitted with properly located test cocks.

Z. Service Connection.

The term "service connection" means the terminal end of a service connection from the public potable water system, i.e., where the Utility loses jurisdiction and sanitary control over the water at its point of delivery to the consumer's water system. If a meter is installed at the end of the service connection, then the service connection shall mean the downstream end of the meter. There should be no unprotected takeoffs from the service line ahead of any meter or backflow prevention device located at the point of delivery to the consumer's water system.

AA. Utility.

The term "Utility" means the Fort Wayne Water Utility, the owner and operator of a public potable water system distributing an approved water supply to the public in the City of Fort Wayne and Allen County, Indiana.

BB. Water – Potable.

The term “potable water” means water from any source which has been investigated by the health agency having jurisdiction, and which has been approved for human consumption.

CC. Water Supply – Approved.

The term “approved water supply” means any potable water supply which has been investigated and approved by the Indiana State Board of Health for distribution to the general public for human consumption. The supply shall be tested periodically, as prescribed by the Board of Health, to ensure its continued safety and potability.

DD. Water Supply – Auxiliary.

The term “auxiliary water supply” means any water supply on or available to the premises other than the Utility’s approved public potable water supply. These auxiliary waters may include water from another Utility’s public potable water supply or any natural source such as a well, spring, river, stream, harbor, etc., or “used waters” or “industrial fluids”. They may be polluted or contaminated or they may be objectionable and constitute an unacceptable water source over which the Utility does not have sanitary control.

EE. Water Supply – Unapproved.

The term “unapproved water supply” means a water supply which has not been approved for human consumption by the health agency having jurisdiction.

FF. Water Systems(s) – Consumer’s.

The term “consumer’s water system(s)” shall include any water system located on the consumer’s premises whether supplied by a public potable water system or an auxiliary water supply. The system or systems may be either a potable water system or a piping system.

GG. Water System – Consumer’s Potable.

The term “consumer’s potable water system” means that portion of the privately owned potable water system lying between the point of delivery and point of use. This system will include all pipes, conduits, tanks, receptacles, fixtures, equipment and appurtenances used to produce, convey, store or use potable water.

HH. Water System – Public Potable,

The term “public potable water system” means any publicly or privately owned water system operated as a public utility under a valid health permit to supply water for domestic purposes. This system will include all sources, facilities and appurtenances between the source and the point of delivery such as valves, pumps, pipes, conduits, tanks, receptacles, fixtures, equipment and

appurtenances used to produce, convey, treat, or store a potable water or public consumption or use.

II. Water – Used.

The term “used water” means any water supplied by a Utility from a public potable water system to a consumer’s water system after it has passed through the point of delivery and is no longer under the control of the Utility.

Section III. Responsibility

- A. The Fort Wayne Water Utility has the responsibility to supply a safe, potable water to the point of delivery (i.e., curb shut-off valve) from the Utility’s distribution system into the customer’s service line. The Utility has the right to prevent, by appropriate means, the backflow of contaminated or polluted water or any other foreign substance from entering the public water distribution system.
- B. Public Health agencies have the overall responsibility to protect the health of individuals within their jurisdiction. Therefore, relevant regulations have been promulgated, empowering the health agency to eliminate dangerous plumbing and/or piping connections.
- C. Water customers have the legal responsibility to maintain their respective potable water piping systems free of cross-connections and to comply with all State, County and City laws, ordinances and regulations pertaining to cross-connections.

Section IV. Policy

The policy of the Utility is to control by “containment” all cross-connections which shall be found to exist or which may be installed in the future on the Utility customer’s water piping systems. For the purpose of this regulation the term “containment” shall mean the complete isolation of the customer’s system which affects or may affect the public distribution system. “Containment” shall be achieved by:

- A. Assurance that the customer’s system, or any portion thereof, which may create or is creating a backflow problem is physically disconnected from the Utility distribution system, or by
- B. Installing a backflow preventive device approved by the Utility at the appropriate location to isolate said customer’s system from the Utility’s distribution system.

Section V. Access to Premises

Properly authorized representatives of the Utility shall have the right to enter upon the premises of the customer at all reasonable times for the purpose of inspecting cross-connection protective devices, atmospheric tank installations, and general plumbing for the purpose of determining compliance with this regulation.

Section VI. Regulation

A. No water service connection to any premises shall be installed unless the water supply is protected as required by this regulation. Service of water to any premises shall be discontinued by the Utility if an approved backflow prevention device required by this regulation is not installed, tested and maintained, or if it is found that a backflow preventative device has been removed or by-passed, or if an unprotected cross-connection exists on the premises. Service will not be restored until such conditions are corrected.

B. Where protection is required:

Each service connection supplying water from the public water system to a property having an auxiliary water supply shall be protected against backflow of water from the premises into the public water system, unless the auxiliary water supply is accepted as an additional source by the Utility and said source is tested and approved by the State Board of Health. Such testing and approval by the State Board of Health shall be the same degree and frequency as is required of any "approved water supply".

C. Type of Protection:

The protective device shall provide protection commensurate with the degree of hazard. In determining the degree of hazard and the type of device required, the Utility will:

1. Make a comprehensive survey of water use practices within the customer's premises to determine whether there are any existing or potential cross-connections to the in-plant potable water system through which sewage, toxic chemicals or other fluids containing contaminants of a biological or chemical nature could backflow into the potable system.
2. The inspector shall determine:
 - a. Whether there are contaminants or pollutants being handled on the premises, and
 - b. If there are, whether they could, if ingested, cause illness and/or death, or whether they would be considered a nuisance or be aesthetically objectionable (taste, odor, and/or discoloration).

D. Backflow Preventers – Responsibility for Installation and Maintenance.

Backflow preventive devices required hereunder shall be of a type and manufacture approved by the Utility. The device shall be installed by and at the expense of the customer in an accessible location and in a manner approved by the Utility.

The customer shall test and service each device every six months (or more frequently if required) to maintain them in satisfactory operating condition and shall overhaul or replace such devices found defective.

A report of each test, repair and/or overhaul shall be prepared by the customer in duplicate on forms prescribed by the Utility. A copy of each report shall be filed with the Utility within ten (10) days after the test, repair and/or overhaul has been completed. The report shall contain:

1. Results of the test.
2. Nature of any malfunctioning found.
3. Results of re-test after repair and/or overhaul.

E. Typical Installations.

1. An approved reduced pressure principle backflow preventer shall be installed at each service connection to any premise where there is an auxiliary water supply unless such auxiliary water supply is accepted as an additional source by the Utility, and the source is approved by the State Board of Health. A complete and permanent abandonment of the auxiliary water facility, where possible and practical will eliminate further application of this requirement.
2. An approved reduced pressure principle backflow prevention device shall be installed at each service connection to any premise on which "industrial fluids" are handled in a separate system and there are, or may be, actual or potential cross-connections on the premises.
3. An approved reduced pressure principle backflow prevention device shall be installed at each service connection to any premise on which there is a sewage treatment plant, sewage pumping station, including privately owned sewage pumping plants in buildings, or a storm water pumping station.
4. An approved reduced pressure principle backflow prevention device shall be installed at each service connection to a hospital, medical-dental building, mortuary or other similar premise where the water Utility determines that an actual or potential hazard exists.

F. Plants or facilities where backflow protection at the service connection will usually be required and method of correction.

Note: The following abbreviations have been adopted describing devices and methods used to control cross-connections at the service connection:

Air Gap	A.G.
Reduced Pressure Backflow Device	R.P.D.
Double Check Valve Assembly	D.C.A.

1. Aircraft and Missile Plants.....A.G. or R.P.D.
2. Automotive Plants.....A.G. or R.P.D.
3. Automobile Servicing Facilities, including
Car Washes.....A.G., R.P.D. or D.C.A.
4. Auxiliary Water Systems
 - a. Potentially contaminated sources.....A.G. or R.P.D.
 - b. Potable but not acceptable as supplemental

- source for the public water system.....D.C.A
- c. Approved source supplemental to the public potable water system (accepted by the Utility and approved by the State Board of Health).....None
- 5. Beverage Bottling Plants
 - a. Subject to backpressure.....A.G. or R.P.D.
 - b. Not subject to backpressure.....D.C.A.
- 6. Breweries.....A.G. or R.P.D.
- 7. Buildings – Hotels, Apartment Houses, Public and Private Buildings or other Structures
 - a. Major health hazard exists.....A.G. or R.P.D.
 - b. Minor health hazard exists.....D.C.A.
- 8. Cranberries, Packing Houses and Reduction Plants.....A.G. or R.P.D.
- 9. Chemical Plants – Manufacturing, Processing, Compounding or Treatment.....A.G. or R.P.D.
- 10. Chemically or biologically contaminated water systems.....A.G. or R.P.D.
- 11. Civil Works
 - a. Health hazard exists.....A.G. or R.P.D.
 - b. No health hazard exists.....D.C.A.
- 12. Dairies and Cold Storage Plants
 - a. Health hazard exists.....A.G. or R.P.D.
 - b. No health hazard.....D.C.A.
- 13. Film Laboratories.....A.G. or R.P.D.
- 14. Hospitals, Medical Buildings, Sanitariums, Morgues, Mortuaries, Autopsy Facilities.....A.G. or R.P.D.
 - a. Nursing and Convalescent Homes and Clinics.....D.C.A.
- 15. Irrigation Systems – Premises having irrigation systems separate from their domestic systems such as Parks, Playgrounds, Cemeteries, Golf Courses, Schools, Estates, Ranches, etc.....A.G. or R.P.D.
- 16. Laundries and Dye Works.....A.G. or R.P.D.
- 17. Metal Manufacturing, Cleaning, Processing And Fabricating Plants.....A.G. or R.P.D.
- 18. Motion Picture Studios.....A.G. or R.P.D.
- 19. Oil and Gas Production – Storage or Transmission Properties.....A.G. or R. P.D.
- 20. Paper and paper Products Plants.....A.G. or R.P.D.
- 21. Plating Plants.....A.G. or R.P.D.
- 22. Power Plants.....A.G. or R.P.D.
- 23. Radioactive Materials or Substances – Plants or Facilities Handling.....A.G. or R.P.D.
- 24. Restricted, Classified or other Closed Facilities.....A.G. or R.P.D.
- 25. Rubber Plants – Natural or Synthetic.....A.G. or R.P.D.
- 26. Sand and Gravel Plants.....A.G. or R.P.D.
- 27. Schools and Colleges.....A.G. or R.P.D.
- 28. Sewage and Storm Drain Facilities.....A.G. or R.P.D.

The above items are representative of those types of facilities which may require protective measures to prevent backflow. Other facilities likewise may require the use of protective measures due to hazards they may create. The fact that such other facilities are not listed above shall not exempt them from being required to comply with this regulation.

Section VII. Non-Compliance

If the Utility, either through inspection or any other means, determines a customer is in violation of any part or parts of this regulation, the Utility reserves the right to discontinue supplying water to the customer unless and until the customer has corrected and/or eliminated the violations.

Section VIII. Constitutionality and Severability

If any section, subsection, sentence, clause or phrase of this regulation is for any reason held by a court or competent jurisdiction to be unconstitutional or invalid, such decision shall not affect the validity of the remaining portions of this regulation.

Prepared:
September 11, 1974
Fort Wayne Water Utility, Engineering Department

D.L. Foland, P.E., Chief Engineer

Approved:

September 20, 1974
Fort Wayne Water Utility

M.M. Mendel, General Superintendent

Adopted:

_____, 1974

CITY OF FORT WAYNE, INDIANA
BOARD OF PUBLIC WORKS

Dr. Jerry D. Boswell, Chairman

Ronald L. Bonar

William G. Williams

Revised 3/3/75

RESOLUTION No. 71-76-21

WHEREAS, the Water Utility does assume the responsibility for the maintenance and operation of the water service line from the water main up to and including the curb stop, according to its General Rules and Regulations, Rule 10, page 11, approved June 3, 1981, and

WHEREAS, the Water Utility has attempted to reduce the installation expense for ¾" to and including 2" water services by installing the tap only and permitting others to install the water service line from the water main to the curb stop, and

WHEREAS, this installation procedure has been permitted on a trial basis for several years, and

WHEREAS, the Water Utility has experienced, as a result of this procedure, both the installation of unacceptable materials and the lack of the submitted required records to operate and maintain these water service lines efficiently and effectively.

NOW, THEREFORE, BE IT RESOLVED, that effective immediately the practice of installing a water tap only be permanently discontinued and, henceforth, the Water Utility shall install all water taps and service lines, ¾" to and including 2" in size, from the water main up to and including the curb stop.

Approved by the Board of Public Works of the City of Fort Wayne, Indiana on this _____ day of _____, _____.

BOARD OF PUBLIC WORKS

Thomas W. Latchem, Chairman

Roberta Anderson Staten, Member

Betty R. Collins, Member

ATTEST:

Sandra E. Kennedy, Clerk