

CHAPTER 710: DESIGN STANDARDS AND CROSS CONNECTION

ARTICLE I. DESIGN STANDARDS FOR LOCATION OF WATER MAINS WITH RESPECT TO SEWERS

SECTION 710.010: HORIZONTAL SEPARATION

Whenever possible, a water main shall be laid at least ten (10) feet, horizontally, from any sanitary sewer, storm sewer, or manhole. When local conditions prevent a lateral separation of ten (10) feet, a water main may be laid closer than ten (10) feet to a sanitary or storm sewer, provided that the water main is laid in a separate trench, or on an undisturbed earth shelf located on one (1) side of the sewer at such an elevation that the bottom of the water main is at least eighteen (18) inches above the top of the sewer. When it is impossible to obtain proper horizontal and vertical separation as stipulated above, both the water main and sewer must be constructed of mechanical slip-on, or lead joint cast-iron pipe, or pressure tested concrete cylinder pipe, and should be pressure-tested to assure water-tightness before backfilling.

SECTION 710.020: VERTICAL SEPARATION

Whenever water mains must cross sanitary sewers, house sewers, or storm drains, the water main shall be laid at such an elevation that the bottom of the water main is eighteen (18) inches above the top of the drain or sewer. A full length of water main pipe shall be centered over the sewer line to be crossed so that the joints will be equally distant from the sewer and as remote therefrom as possible. This vertical separation shall be maintained for that portion of the water main located within ten (10) feet, horizontally, of any sewer or drain it crosses.

SECTION 710.030: UNUSUAL CONDITIONS

Where conditions prevent the minimum vertical separation set forth above from being maintained, or when it is necessary for the water main to pass under a sewer or drain, the water main shall be laid with slip-on, leaded, or mechanical joint cast-iron pipe, or pressure-tested concrete cylinder pipe, and the water main shall extend on each side of the crossing to a distance from the sewer of at least ten (10) feet. In making such a crossing, a full length of water main pipe must be centered over or under the sewer to be crossed, so that the joints will be equal distant from the sewer and as remote therefrom as possible. The sewer line must also be constructed of cast-iron pipe with slip-on, leaded, or mechanical joints until the normal distance from the sewer line to the water main is at least ten (10) feet. Where a water main must cross under a sewer, a vertical separation of eighteen (18) inches between the bottom of the sewer and the top of the water main shall be maintained, with adequate support, especially for larger sized sewer lines to prevent them from settling on and breaking the water main. The sewer shall be constructed of cast iron pipe for a distance of ten (10) feet on either side of the crossing, or other suitable protection as approved by the Division of Environmental Quality shall be provided. Where these conditions cannot be met, the Division of Environmental Quality shall be consulted as to the precautions to be taken to protect the public water supply.

SECTION 710.040: SEWER MANHOLES

No water pipe shall pass through, or come into contact with, any part of a sewer or a sewer manhole.

ARTICLE II. CROSS CONNECTIONS, AUXILIARY INTAKES, AND INTERCONNECTIONS

SECTION 710.050: DEFINITIONS

For the purposes of this Chapter the following terms shall be deemed to have the meaning indicated below:

AIR GAP SEPARATION: The unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank, plumbing fixture, or other device and the overflow level rim of the receptacle, and shall be at least double the diameter of the supply pipe measured vertically above the flood level rim of the vessel, but in no case less than one (1) inch.

AUXILIARY WATER SUPPLY: Any water source or system, other than the public water supply, that may be available in the building or premises.

BACKFLOW: The flow other than the intended direction of flow, of any foreign liquids, gases, or substances into the distribution system of a public water supply.

BACKFLOW PREVENTION ASSEMBLY: Any device, method, or type of construction intended to prevent backflow into a potable water system.

CONSUMER: The owner or person in control of any premises supplied by or in any manner connected to a public water system.

CONTAINMENT: Protection of the public water supply by installing cross connection control device or air gap separation on the main service line to a facility.

CONTAMINATION: An impairment of the quality of the water by sewage, process fluids, or other wastes to a degree which could create an actual hazard to the public health through poisoning or through spread of disease by exposure.

CROSS CONNECTION: Any physical link between a potable water supply and any other substance, fluid, or source, which makes possible contamination of the potable water supply due to the reversal of flow of the water in the piping or distribution system.

HAZARD, DEGREE OF: An evaluation of the potential risk to public health and the adverse effect of the hazard upon the potable water system.

1. **Hazard, Health:** Any condition, device, or practice in the water supply system and its operation which could create or may create a danger to the health and well-being of the water consumer.
2. **Hazard, Plumbing:** 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 backflow prevention device.
3. **Hazard, Pollution:** An actual or potential threat to the physical properties of the water system or to the potability of the public or the consumer's potable water system but which would constitute a nuisance or be aesthetically objectionable or could cause damage to the system or its appurtenances, but would not be dangerous to health.
4. **Hazard, System:** An actual or potential threat of severe damage to the physical properties of the public potable water system 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.

INDUSTRIAL PROCESS SYSTEM: Any system containing a 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, pollution, or plumbing hazard if introduced into a potable water supply.

INTERCONNECTION: Any system of piping or other arrangement whereby the public water system is connected directly with a sewer, drain, conduit, pool, storage reservoir, or other device which does or may contain sewage or other waste or liquid which would be capable of imparting contamination to the public water system.

ISOLATION: Protection of a facility service line by installing a cross connection control device or air gap separation on an individual fixture, appurtenance, or system.

POLLUTION: The presence of any foreign substance (organic, inorganic, or biological) in water which tends to degrade its quality so as to constitute a hazard or impair the usefulness of the water to a degree which does not create an actual hazard of the public health but which does adversely and unreasonably affect such waters for domestic use.

PUBLIC POTABLE WATER SYSTEM: Any publicly or privately owned water system supplying water to the general public which is satisfactory for drinking, culinary, and domestic purposes and meets the requirements of the Missouri Department of Natural Resources.

SERVICE CONNECTION: The terminal end of a service line from the public water system. If a meter is installed at the end of the service, then the service connection means the downstream end of the meter.

WATER PURVEYOR: The owner, operator, or individual in responsible charge of a public water system.

SECTION 710.060: COMPLIANCE

The City of Seligman Public Water System is to comply with the Missouri Department of Natural Resources Rules and Regulations, 10 CSR 60-11.010, Prevention of Backflow, which pertain to cross connections, auxiliary supplies, and interconnections, and establish an effective, ongoing program to control these undesirable water uses.

SECTION 710.070: APPROVAL

No person shall cause a cross connection, auxiliary supply, or interconnection to be made, or allow one to exist for any purpose whatsoever, unless the construction and operation of same has been approved by the Missouri Department of Natural Resources and the operation of such cross connection, auxiliary supply, or interconnection is at all times under the direct supervision of the Superintendent of Water-Sewer Operation-Streets of the City of Seligman Public Water System.

SECTION 710.080: UNAUTHORIZED CROSS CONNECTION

Any person whose premises are supplied with water from the public water system, and who also has on the same premises a separate source of water supply or stores water in an uncovered or unsanitary storage reservoir from which the water stored therein is circulated through a piping system, shall file with the Superintendent of Water-Sewer Operation-Streets a statement of the nonexistence of unapproved or unauthorized cross connections, auxiliary supplies, or interconnections. Such statement shall also contain an agreement that no cross connection, auxiliary supply, or interconnection will be permitted upon the premises.

SECTION 710.090: INSPECTIONS

It shall be the duty of the City of Seligman Public Water System to cause inspections to be made of all properties served by the public water system where cross connections with the public water system are deemed possible. The frequency of inspections and re-inspections based on potential health hazards involved shall be as established by the City of Seligman Public Water System, and as approved by the Missouri Department of Natural Resources.

SECTION 710.100: RIGHT TO ENTER PROPERTY FOR PURPOSE OF INSPECTION

The Superintendent of Water-Sewer Operation-Streets or authorized representative shall have the right to enter, at any reasonable time, any property served by a connection in the City of Seligman Public Water System for the purpose of inspecting the piping system or systems thereof for cross connections, auxiliary supplies, or interconnections. On request, the owner, lessee, or occupant of any property so served shall furnish to the inspection agency any pertinent information regarding the piping system or systems on such property. The refusal of such information or refusal of access, when requested, shall be deemed evidence of the presence of cross connections.

SECTION 710.110: VIOLATIONS ALREADY IN EXISTENCE

- A. Any person who now has cross connections, auxiliary supplies, or interconnections in violation of this Article shall be allowed a reasonable time within which to comply with the provisions of this Article. After a thorough investigation of existing conditions and an appraisal of the time required to complete the work, the amount of time shall be designated by the Superintendent of Water-Sewer Operation-Streets.
- B. The failure to correct conditions threatening the safety of the public water system as prohibited by this Article and the Missouri Department of Natural Resources Rules and Regulations, 10 CSR 60-11.010, Prevention of Backflow, within a reasonable time and within the time limits set by the City of Seligman Public Water System, shall be grounds for denial of water service. If proper protection has not been provided after a reasonable time, the utility shall give the customer legal notification that water service is to be discontinued, and physically separate the public water system from the customer's on-site piping system in such a manner that the two (2) systems cannot again be connected by an unauthorized person.
- C. Where cross connections, interconnections, or auxiliary supplies are found that constitute an extreme hazard of immediate concern of contaminating the public water system, the manager of the utility shall require that immediate corrective action be taken to eliminate the threat to the public water system. Immediate steps shall be taken to disconnect the public water supply from the on-site piping system unless the hazard(s) is (are) corrected immediately.

SECTION 710.120: BACKFLOW PREVENTION ASSEMBLY

- A. Where the nature of use of the water supplied a premises by the water system is such that it is deemed:
1. Impractical to provide an effective air gap separation;
 2. That the owner and/or occupant of the premises cannot or is not willing to demonstrate to the official in charge of the system, or his/her designated representative, that the water use and

protective features of the plumbing are such as to propose no threat to the safety or potability of the water system;

3. That the nature and mode of operation within a premises are such that frequent alterations are made to the plumbing;

4. There is likelihood that protective measures may be subverted, altered, or disconnected.

The Superintendent of Water-Sewer Operation-Streets or his/her designated representative, shall require the use of an approved backflow prevention assembly on the service line serving the premises to assure that any contamination that may originate in the customer's premises is contained therein. The required backflow prevention assembly shall be commensurate with the degree of hazard and shall be approved by the Missouri Department of Natural Resources as to manufacturer, model, and size. Appendix C contains the most current list of backflow prevention assemblies approved by the Missouri Department of Natural Resources. The method of installation of backflow protective assemblies shall be approved by the Superintendent of Water-Sewer Operation-Streets prior to installation and shall comply with the criteria set forth by the Missouri Department of Natural Resources. The installation shall be at the expense of the owner or occupant of the premises.

The City of Seligman Public Water System shall have the right to require inspection and testing of the assembly or assemblies on an annual basis or whenever deemed necessary by the Superintendent of Water-Sewer Operation-Streets or his/her designated representative. Water service shall not be disrupted to test the assembly without the knowledge of the occupant of the premises.

B. Where the use of water is critical to the continuance of normal operations or protection of life, property or equipment, duplicate units shall be provided to avoid the necessity of discontinuing water service to test or repair the protective assembly or assemblies. Where it is found that only one (1) unit has been installed and continuance of service may be critical, the official in charge of the water system shall notify in writing, the occupant of the premises of plans to discontinue water service and arrange for a mutually acceptable time to test and/or repair the device. The water system shall require the occupant of the premises to make all repairs indicated promptly, and the expense of such repairs shall be borne by the owner or occupant of the premises. Following any repair, the unit must be re-tested by a State certified backflow prevention assembly tester.

C. If necessary, water service shall be discontinued (following legal notification) for failure to maintain backflow prevention assemblies in proper working order. Likewise the removal, bypassing, or altering the protective assembly/assemblies, or the installation thereof, so as to render the assembly/assemblies ineffective shall constitute grounds for discontinuance of water service. Water service to such premises shall not be restored until the customer has corrected or eliminated such conditions or defects to the satisfaction of the City of Seligman Public Water System.

SECTION 710.130: APPLICATION TO ALL PREMISES

The requirements herein shall apply to all premises served by the City of Seligman Public Water System regardless of political subdivision boundaries, and are hereby made a part of the conditions required to be met for the City of Seligman Public Water System to provide water service to any premises. Such action, being essential for the protection of water distribution system against the entrance of

contamination which may render the water unsafe health wise, or otherwise undesirable, shall be enforced rigidly without regard to location of the premises relative to boundaries of any political subdivision. Examples of customer premises considered to be actual or potential sources of contamination are listed in Appendix B, on file in the office of the City Clerk.

SECTION 710.140: DISCONNECTION

Whenever any person neglects or refuses to comply with any of the provisions of this Article, the Superintendent of Water-Sewer Operation-Streets shall discontinue the public water system service at any premises upon which there is found to be a cross connection, auxiliary supply, or interconnection, and service shall not be restored until such cross connection, auxiliary supply, or interconnection has been discontinued.