

ORDINANCE NO. 1975  
CITY OF LEXINGTON, NEBRASKA

AN ORDINANCE OF THE CITY OF LEXINGTON, NEBRASKA, AMENDING CHAPTER 27 OF THE LEXINGTON CITY CODE BY ADDING PROVISIONS TO PREVENT THE BACKFLOW AND BACKSIPHONAGE OF HARMFUL MATERIAL WHICH CAN CONTAMINATE THE PUBLIC WATER SUPPLY SYSTEM; TO REPEAL ANY ORDINANCES OR SECTIONS OF ORDINANCES IN CONFLICT HEREWITH; TO PROVIDE FOR AN EFFECTIVE DATE AND FOR PUBLICATION IN PAMPHLET FORM.

BE IT ORDAINED BY THE MAYOR AND COUNCIL OF THE CITY OF LEXINGTON, NEBRASKA, AS FOLLOWS:

SECTION 1. That Chapter 27 of the Lexington City Code is hereby amended by adding a new Article II: Backflow Prevention, to read as follows:

## CHAPTER 27

### II - BACKFLOW PREVENTION

Sec. 27-35	Title
Sec. 27-36	Definitions
Sec. 27-37	Policy and Purpose
Sec. 27-38	Surveys and Investigations
Sec. 27-39	Where Protection is Required
Sec. 27-40	Type of Protection Required
Sec. 27-41	Backflow Prevention Devices
Sec. 27-42	Booster Pumps
Sec. 27-43	Yard Hydrants
Sec. 27-44	Fire Suppression System
Sec. 27-45	Violations
Sec. 27-46	Approval Standards
Sec. 27-47	Liability Claims

#### Section 27-35 Title.

Lexington City Code Sections 27-35 through 27-47, and any amendments pertaining thereto, shall be known as the backflow prevention ordinance.

#### Section 27-36 Definitions.

The following definitions shall apply in the interpretation and enforcement of this ordinance.

- (a) "Air gap separation" means the unobstructed vertical distance through the free atmosphere between the lowest opening of any pipe or faucet supplying water to a tank, plumbing fixture, or other device and the flood level rim of the said

receptacle. An approved air-gap shall be at least double the diameter of the supply pipe, measured vertically, above the top of the rim of the receptacle and, in no case less than one inch.

- (b) "Antisiphon vacuum breaker" is a device which restricts the backflow of water into a potable water system by a simple check valve. The vacuum is broken by allowing air to enter upstream of the check valve.
- (c) "Approved" means that a backflow prevention device or method has been accepted by the Manager as being suitable for the intended use.
- (d) "Auxiliary water system" means any water supply system available to the premises other than the public water supply system and includes the water supplied by such system. These auxiliary water systems may include water from another owner's public water supply system; polluted or contaminated water, process fluids; used water; or other sources of water which the owner of the public water supply system does not have sanitary control.
- (e) "Backflow" or "backsiphonage" means the flow of water or other liquids, mixtures, or substances into the water distribution system from any other source than the intended source of the potable water supply.
- (f) "Backflow prevention devise" means any device, method or type of construction intended to prevent backflow into a potable water system. Devices such as an "Approved Air-gap", "Double Check Valve Assembly", "Antisiphon Vacuum Breaker" or a "Reduced Pressure Principle Devices" can be used which have been approved by the Manager.
- (g) "Consumer" means the owner or person in control of any premises supplied by or in any manner connected to a public water supply system.
- (h) "Consumers water supply system" means any water supply system, located on the consumer's premises, supplied by or in any manner connected to a public water supply system. A household plumbing system is considered to be a consumer's water supply system. A fire suppression system is also considered a consumer's water supply system.
- (i) "Contamination" means an impairment of the quality of the water by sewage, or waste to a degree which could cause an actual hazard to the public health through poisoning or through spread of disease by exposure.
- (j) "Cross-connection" means any arrangement whereby contamination due to backflow or backsiphonage can occur.
- (k) "Degree of hazard" is a term derived from an evaluation of the potential risk to health and the adverse effects upon the potable water system.
- (l) "Double check valve assembly" means an assembly composed of two single, independently acting, check valves including one hundred percent closing shutoff ball valves located at each end of the assembly and suitable connections for testing the water-tightness of each check valve.

- (m) "Health hazard" means any condition, device, or practice in a water system or its operation that creates a real or potential danger to the health and well being of the consumer.
- (n) "Interchangeable connection" means an arrangement or devise that will allow alternate but not simultaneous uses of two sources of water.
- (o) "Manager" means the Lexington City Manager or his authorized representative in the Building Department.
- (p) "Non-potable water" means water not safe for drinking, personal, or culinary use, or which does not meet the requirements of the Nebraska Department of Health.
- (q) "Owner" means the person delivering water through a public water supply system. The owner is City of Lexington, Nebraska.
- (r) "Person" means the state, any political subdivision, public or private corporation, individual, partnership, or otherwise legal entity. When the term he, or his is used, it shall mean any male or female person.
- (s) "Plumbing hazard" means a plumbing type cross-connection in a consumer's potable water system that has not been properly protected by air-gap separation or backflow prevention devices.
- (t) "Pollution" means the presence in water of any foreign substance (organic, inorganic, or biological) that degrades the quality of water to a degree which does not necessarily cause an actual hazard to the public health but which does adversely and unreasonably affect such waters for any desired use.
- (u) "Pollution hazard" means a condition through which an aesthetically objectionable or degrading material not dangerous to health may enter the public water supply system or the consumer's water supply system.
- (v) "Potable water" means water which is satisfactory for drinking, culinary, and domestic purposes and meets the requirements of the Nebraska Department of Health.
- (w) "Public water supply system" means a water supply system designed and intended to provide potable water to a designated consumer. The water supply shall include the water supply source and distribution piping network. The water supply source is defined as any artificial or natural accumulation of water used to supply the potable water system. The distribution piping network includes all piping, pumping and treatment devises used to convey an adequate quality and quantity of potable water to the consumer.
- (x) "Reduced pressure zone backflow prevention devise" means a device containing a minimum of two independently acting check valves together with an automatically operated pressure differential relief valve located between two check valves. During normal flow and at the cessation of normal flow, the pressure between these two checks shall be less than the supply pressure. In case of leakage of either check valve, the differential relief valve, by discharging to the atmosphere, shall operate to maintain the pressure between the check valves at

less than the supply pressure. The unit must include one hundred percent closing shutoff ball valves located at each end of the device, and each device shall be fitted with properly located test cocks.

- (y) "Service connection" means 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.
- (z) "System hazard" means a condition posing an actual or potential threat of damage to the physical properties of the public's or the consumer's water supply system.
- (aa) "Used water" means any water supplied by the public water supply system to a consumer's water supply system after it has passed through the service connection and is no longer under the sanitary control of the water supplier.

The consumer as defined in these regulations, if requested by the Manager, shall designate an individual or individuals, who shall be responsible for contact and communications with the Manager in matters relating to system alteration and construction, monitoring and sampling, maintenance, operation, record keeping, and reporting, as required by law and these regulations. Any change in assigned responsibilities or designated individuals shall be promptly reported to the Manager.

#### Section 26-37 Policy and Purpose.

- (1) The purpose of this ordinance is to protect the public water supply system of the City of Lexington from the possibility of contamination by isolating real or potential sources of contamination or pollution which may backflow into the public water supply system. This ordinance provides for the maintenance of a continuing program of cross-connection control which will systematically and effectively prevent the contamination or pollution of the potable water supply systems.
- (2) The Manager shall be responsible for the implementation of the backflow prevention program as outlined within this ordinance. If in the judgment of the Manager an approved backflow prevention device is required for the safety of the public water supply system then the Manager shall give notice in writing to the consumer to install said device at each recommended location. The Manager shall inspect and approve all installations of the required backflow prevention devices. The costs for purchasing, installing, and maintaining a backflow prevention device shall be the responsibility and sole expense of the consumer. The installation of backflow prevention devices, except for outlet fixture vacuum breakers, shall be by a qualified plumber. Annual testing of all double check valves and reduced pressure zone devices shall be performed by the Manager. If deemed necessary by the Manager that maintenance or repairs are necessary, the Owner shall be contacted and issued an order to make all necessary repairs or maintenance. The Owner shall complete all maintenance or repairs within thirty (30) days; if not, the owner shall be considered in violation of the backflow ordinance and will be subject to disconnection of the service as provided in Section 27-45.

- (3) No person shall install or maintain a water service connection, containing cross-connections to a public water supply system or a consumer's potable water supply system unless such cross-connections are abated or controlled in accordance with this rule, and as required by the laws and regulations of the Nebraska Department of Health.
- (4) For the purposes of this backflow prevention ordinance, whenever the Manager is to make any decision or interpretation, or whenever reference is made to the fact that the Manager is to exercise the judgment, such decision, interpretation or judgment shall be in accordance with the provisions of this backflow prevention ordinance, and any other applicable provisions of the Lexington City Code, and state and federal law.

Section 27-38 Surveys and Investigations.

- (1) It shall be the responsibility of the water consumer to conduct or cause to be conducted, periodic surveys of water use practices on his premises as necessary to determine whether there are actual or potential cross-connections in the consumer's water supply system. The Manager shall have the authority to conduct or cause to be conducted periodic surveys and investigations, or a frequency as determined by the Manager, of water use practices within a consumer's premises to determine whether there are actual or potential cross-connections to the consumer's water supply system through which contaminants or pollutants could backflow into the public water supply system. The Manager may conduct these surveys to provide information in determining what level of protection will be necessary to protect the public health and safety.
- (2) On request by the Manager the consumer shall furnish the Manager information on water use practices within the consumer's premises. If the consumer refuses to submit the proper information or to cooperate in obtaining the proper information, the Manager shall treat the premises as if no appropriate cross-connection survey has been completed, and in such event the consumer shall be required to install an approved backflow prevention device as required to Section 27-39.
- (3) The Manager shall have the right to enter a premises served by the public water supply system at all reasonable times for the purpose of making surveys and investigations of water use practices within the premises. In order to inspect a premise, the Manager shall give notice setting forth a proposed date and time to the consumer at least ten (10) days in advance. If the consumer cannot make the premises available for inspection at the proposed date and time, the consumer shall contact the Manager and arrange for another date and time for the inspection. If the Manager and the consumer cannot agree on a date and time, then the Manager shall treat the premises as if no appropriate cross-connection survey has been completed, and in such event the consumer shall be required to install an approved backflow prevention device as required to Section 27-39.
- (4) The Board of Adjustment is hereby appointed as a Hearing Board to hear differences between the Manager and the consumer on matters concerning interpretation and execution of the provisions of this ordinance by the Manager. Any consumer aggrieved by being required to pay the expense of installing, furnishing, and or maintaining a backflow prevention device may, within fourteen (14) days of the act or event causing the grievance, request a hearing in writing to present those grievances to the Hearing Board. The Hearing Board shall schedule the matter for hearing within thirty (30) days, and provide written

notice of the meeting by first class mail to the consumer. The notice shall be mailed to the consumer at least seven (7) and not more than twenty-one (21) days before the hearing. At the hearing the consumer shall first state the nature of the grievance, and the Manager shall be entitled to respond thereto, whereupon the hearing board shall render its decision which will be binding upon the consumer and the Manager.

Section 27-39 Where Protection Is Required.

- (1) An approved backflow prevention device shall be installed between the service connection and the point of potential backflow into a consumer's water supply system when in the judgment of the Manager a health, plumbing, pollution or system hazard exists.
- (2) An approved backflow prevention device shall be installed when the following conditions are found by the Manager to exist:
  - (a) Premises on which any substance is handled in such a fashion as to create an actual or potential hazard to a public water supply system. This shall include premises having sources or systems containing process fluids or waters originating from a public water supply system which are no longer under the sanitary control of the owner;
  - (b) Premises having internal cross-connections that, in the judgment of the Manager, are not correctable, or there exists intricate plumbing arrangements which make it impracticable to determine whether or not cross-connections exist;
  - (c) Premises where, because of security requirements or other prohibitions or restrictions, it is impossible or impractical to make a complete cross-connection survey;
  - (d) Premises having a repeated history of cross-connections being established or re-established;
  - (e) Premises having more than one customer service connection which could constitute a potential cross-connection.
- (3) An approved backflow prevention device shall be installed on each service line to a customer's water supply system serving the following types of facilities unless the Manager determines that no health, pollution, or system hazard to the public water supply system exists:
  - (a) Hospitals, mortuaries, dental clinics, nursing and convalescent homes, medical buildings;
  - (b) Testings laboratories, film laboratories, film development facilities;
  - (c) Sewage treatment plants, sewage pumping stations, or storm water pumping stations;
  - (d) Food or beverage processing plants;
  - (e) Chemical plants;

- (f) Metal de-greasing, plating industries, machine tool plants, dye and metal processing or productions;
- (g) Chemical and petroleum processing or storage plants;
- (h) Car washes, automobile servicing facilities;
- (i) Lawn irrigation systems and swimming pools;
- (j) Laundries and dry cleaners;
- (k) Packing houses;
- (l) Power plants;
- (m) Premises having radioactive materials such as laboratories, industries, hospitals;
- (n) Rendering plants;
- (o) Premises having water recirculating systems as used for boilers or cooling systems;
- (p) Veterinary establishments, kennels, feedyards, stables, rodeo grounds, stockyards, pet grooming salons;
- (q) Beauty salons, barbershops, message parlors, health clubs;
- (r) Fire suppression systems;
- (s) Multi-storied buildings greater than three (3) stories in height;
- (t) Schools, universities, colleges;
- (u) Other commercial or industrial facilities which may constitute potential cross-connection.

Section 27-40 Type Of Protection Required.

- (1) The type of protection required under sections 27-39(1) and 27-39(2) of this Article shall depend on the degree of hazard that exists as follows:
  - (a) An approved air gap separation or an approved reduced pressure principle backflow prevention device shall be installed where a public water supply system may be contaminated with any substance that could cause a system hazard or health hazard;
  - (b) An approved double check valve assembly shall be installed where a public water supply system may be contaminated with any substance that could cause a pollution hazard;
  - (c) An approved reduced pressure principle backflow prevention device shall be installed at the service connection where there exists a plumbing hazard;



- (d) In the case of any premises where, because of security requirements or other prohibitions it is impossible or impractical to make a complete cross-connection survey of the consumers potable water system, a reduced pressure principle backflow prevention device shall be installed at the service connection.
- (2) An approved antisiphon vacuum breaker may be used as a backflow prevention device where it is not subjected to back pressures. This device shall not be used for applications where water flow is expected to be continuous for 12 or more hours. The device shall be installed ahead of the potential source of contamination on the discharge side of the last control valve. It shall be placed at least 12" above the highest point reached by any water passing through the potential source of contamination. Typically this type of device is used for such equipment as lawn sprinklers, water-cooled compressors, or other water cooled equipment.

#### Section 27-41 Backflow Prevention Devices.

- (1) Any approved backflow prevention device required by Section 27-39 shall be installed at a location and in a manner approved by the Manager. The consumer, at his sole expense, shall obtain and install said approved backflow prevention device(s) within 90 days of notice and as directed by the Manager.
- (2) Existing backflow prevention devices approved by the Manager prior to the effective date of this rule and which are properly maintained shall, except for inspection, testing, and maintenance requirements, be excluded from the requirements of subsection (1) above, but only if the Manager determines that the devices will satisfactorily protect the public water supply system. One hundred percent closing shut off ball valves for testing shall be provided on existing backflow prevention devices, if deemed necessary for proper testing by the Manager. If deemed necessary by the Manager that an existing backflow prevention device requires replacement, it shall be replaced with an approved backflow prevention device.

#### Section 27-42 Booster Pumps.

- (1) No person shall install or maintain a water service connection to any premises where a booster pump has been installed on the service line to or within such premises, unless such booster pump is equipped with a low pressure cut-off designed to shut-off the booster pump when the pressure in the service line on the suction side of the pump drops to twenty (20) pounds per square inch gauge or less.
- (2) It shall be the duty of the water customer to maintain the low pressure cut-off device in proper working order.

#### Section 27-43 Yard Hydrants.

- (1) The installation of yard hydrants where water is available or accessible for drinking or culinary purposes and which have drip openings below ground surface, is prohibited unless such hydrants are equipped with an approved device to prevent entrance of ground water into chambers connected with the water supply.

- (2) Yard hydrants or hose bibs which would be used by the consumer to provide water to mix pesticides, fertilizer, or other chemicals, for direct use or aerial application to surface areas shall be equipped with an antisiphon vacuum breaker.
- (3) All underground lawn and garden sprinkler systems shall be equipped with an approved backflow prevention device.

Section 27-44 Fire Suppression System.

- (1) All proposed installations of fire suppression systems shall be reviewed by the Manager to determine the appropriate type of backflow prevention device(s) required.
- (2) All proposed fire suppression systems requiring an antifreeze solution shall use a pharmaceutical grade antifreeze. The Consumer shall provide to the Manager a certification identifying the type of pharmaceutical grade antifreeze which shall be used. A double check valve backflow prevention device shall be installed in an approved manner.
- (3) A double check valve of an approved type shall be installed on all proposed fire suppression systems not utilizing antifreeze, but this may be done only when there are no other cross-connections.
- (4) All existing fire suppression systems shall meet the requirements of Subsections (2) or (3) above, whichever applies. An inspection by a certified fire suppression specialist shall be done to determine whether pharmaceutical grade antifreeze(s) have been utilized. This shall be done at the expense of the consumer. If it can not be certified that only pharmaceutical grade antifreezes have been used, then a reduced pressure principle backflow prevention device shall be installed as approved by the Manager. This also shall be done at the expense of the consumer.
- (5) In the event cross-connections, such as those found in using auxiliary water supply systems or in providing other water additives such as foaming agents are necessary for the proper operation of the fire suppression system, then a reduced pressure zone backflow prevention device shall be installed in an approved manner.

Section 27-45 Violations.

- (1) The Manager shall deny or discontinue, after notice to the consumer thereof, the water service to any premise wherein:
  - (a) Any backflow prevention device required by these regulations is not installed or maintained in a manner acceptable to the Manager;
  - (b) It is found that the backflow prevention device has been removed or bypassed;
  - (c) An unprotected cross-connection exists on the premises;
  - (d) A low pressure cut-off required by Section 27-42 is not installed and maintained in working order; or

- (e) The Manager is denied entry to determine compliance with these regulations.
- (2) The Manager shall immediately deny or discontinue, without notice to the consumer thereof, the water service to any premises wherein a severe cross-connection exists which constitutes an immediate threat to the safety of the public water system. The Manager shall notify the consumer within twenty-four (24) hours of said denial or discontinuation of service.
- (3) Water service to such premises shall not be restored until the consumer has corrected or eliminated such conditions or defects in conformance with these regulations, and to the satisfaction of the Manager.

Section 27-46 Approval Standards.

- (1) Any backflow prevention device required herein shall be of a model and size approved by the Manager. The term "Approved Backflow Prevention Device" shall mean a device that has been manufactured in full conformance with the standards established by the American Water Works Associations (AWWA) entitled: AWWA C506-69 Standards for Reduced Pressure Principle and Double Check Valve Backflow Prevention Devices and by the American Society of Sanitary Engineers (ASSE) entitled:

- No. 1001 Pipe Applied Atmospheric Type Vacuum Breakers-ANSI Approved-1982-Revised, 1988
- No. 1011 Hose Connection Vacuum Breakers-ANSI Approved 1982
- No. 1012 Backflow Preventer/Intermediate Atmospheric Vent-1978
- No. 1013 Reduced Pressure Principle Backflow Preventer-Revised 1988
- No. 1015 Double Check Backflow Prevention Assembly-Revised 1988
- No. 1019 Wall Hydrants, Freezeless, Automatic Draining, Anti-Backflow Types, ANSI Approved 1978
- No. 1020 Vacuum Breakers, Anti-siphon, Pressure Type-ANSI Approved 1982
- No. 1024 Dual Check Valve Type Backflow Preventers-ANSI Approved 1984-Revised 1988
- No. 1032 Dual Check Valve Type Backflow Preventer for Carbonated Beverage Dispensers-1980
- No. 1035 Laboratory Faucet Vacuum Breakers-ANSI Approved 1984
- No. 1048 Double Check Detector Assembly Backflow Preventer-1989

Said standards and specifications have been adopted by the Manager. Final approval shall be evidenced by a "Certificate of Approval" issued by an approved testing laboratory certifying full compliance with said standard and specifications.

- (2) The Manager shall keep a current list of all certified suppliers and their appropriate list of makes and models of backflow prevention devices which the Manager has deemed approved.
- (3) The Manager may require a strainer of approved type and size to be installed in conjunction with required backflow prevention devices. The installation of strainers shall preclude the fouling of backflow device(s) due to foreseen and unforeseen circumstances occurring to the water supply system such as water main repairs, water main breaks, fires, periodic cleaning and flushing of mains. These occurrences may cause debris such as scale deposits and sand to flush through the mains causing fouling of backflow device(s).

Section 27-47 Liability Claims.

The Manager shall be relieved from personal liability. The City shall hold harmless the Manager when acting in good faith and without malice, from all personal liability for any damage that may occur to any person or property as a result of any act required or authorized by this title, or by reason of any act or omission of the Manager in the discharge of his duties hereunder. Any suit brought carrying out the provisions of the title shall be defended by the City, or the City's insurance carrier, if any, through final determination of such proceeding.

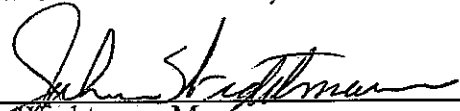
SECTION 2. That all Ordinances or sections of Ordinances in conflict herewith are hereby repealed.

SECTION 3. That this Ordinance shall be published in pamphlet form and take effect as provided by law.

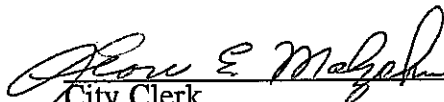
PASSED AND APPROVED THIS 8th day of June, 1993.

CITY OF LEXINGTON, NEBRASKA,

BY:

  
John Wightman, Mayor

ATTEST:

  
City Clerk

