

K.A.R. 5-3-5c. Check valves. (a) All diversion works not subject to regulation under the Kansas chemigation safety law, K.S.A. 2-3301 et seq. and amendments thereto, into which any type of chemical or other foreign substances will be injected into the water pumped from the diversion works shall be equipped with an in-line, automatic, quick-closing check valve capable of preventing pollution of the source of the water supply.

(b) Each check valve required by the chief engineer shall be constructed and installed in accordance with the requirements specified in K.A.R. 5-6-13a.

(c) Each check valve and all required components shall be maintained in an operating condition that prevents backflow into the source of water supply whenever a foreign substance could reasonably be expected to be introduced into the water system. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-706, K.S.A. 82a-706a, K.S.A. 82a-712; effective May 1, 1980; amended May 1, 1981; amended Oct. 24, 2003.)

K.A.R. 5-6-13a. Check valve specifications. The Kansas department of agriculture, division of water resources' document titled "check valve specifications," dated March 14, 2003, is hereby adopted by reference. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-706, K.S.A. 82a-706a, and K.S.A. 82a-712; effective Oct. 24, 2003.) (See inserts, pgs 102-103.)

KANSAS DEPARTMENT OF AGRICULTURE
DIVISION OF WATER RESOURCES
TOPEKA, KANSAS

CHECK VALVE SPECIFICATIONS
MARCH 14, 2003

General:

(1) An acceptable check valve shall be one that is automatic, quick closing, and seals tightly to prevent the back flow of water and the substances mixed with water into the source of water supply.

(2) A check valve shall include the following four components:

- (a) a low pressure drain;
- (b) a vacuum relief device;
- (c) an inspection port; and
- (d) the check valve itself.

The check valve may consist of four individual components or a manufactured unit that includes all four of the required components.

(3) Each check valve shall meet the following standards:

- (a) All components shall be constructed of sturdy corrosion-resistant materials or coated with corrosion-resistant materials. The body of the unit shall be internally resistant to water of the quality being diverted, the foreign substances being introduced, and the external environment. All moving parts shall be constructed to operate without binding, distortion or misalignment.

- (b) The check valve shall contain a suitable, automatic, quick-closing, tight-closing mechanism that closes at the moment water ceases to flow away from the diversion works. The mechanism shall, by a mechanical force greater than the weight of the flapper, provide drip-tight closure against reverse flow. The closing force shall be positive and obvious to hand inspection. This requirement shall not be satisfied by hydraulic back pressure.
- (c) A vacuum relief device, functioning as an air vent, shall be installed between the diversion works and the flapper in a position that prevents the entry of insects, animals, flood water or other foreign substances into the vacuum relief device and subsequently the water supply source.
- (d) An automatic low pressure drain shall be installed between the check valve flapper element and the diversion works, and directly beneath the inspection port at the bottom of the horizontal pipe. The installation shall be made so that any fluid which seeps past the flapper element towards the diversion works will drain out through the automatic low pressure drain. The automatic low pressure drain inlet shall not extend inward past the interior pipe wall without the inclusion of an internal dam or other mechanism to force seepage into the drain. The inlet opening of the drain shall be at least three fourths of an inch in diameter and the outside discharge point shall be at least two inches above grade. Any discharge from the drain shall be directed away from the water supply by the natural slope, a pipe, or a trench.
- (e) An inspection port shall be located between the check valve and the water supply diversion works in a manner that allows easy access and full visual and hand access to all components of the check valve and assembly components. The inspection port shall have an orifice or a viewing port of at least four inches in diameter. For installations with diversion works too small to install a four inch diameter inspection port, the check valve and the other required components shall be mounted with quick-connect fittings, flange fittings, dresser couplings, or other fittings designed to allow easy removal and access.
- (f) Systems utilizing a double check valve or reduced-pressure-zone back flow assembly shall be required to adhere, as a minimum, to a standard equivalent to the manufacturer's standards or recommendations for a method of inspection, testing schedule, and rebuilding schedule.

(4) The check valve and all required components shall be maintained in a satisfactory operating condition that prevents backflow into the source of water supply any time a foreign substance could reasonably be expected to be introduced into the water system.

(5) Variances shall be granted only if a low-pressure drain and vacuum relief device cannot be physically placed in the system.