

Kansas Administrative Regulations

Kansas Department of Agriculture— Division of Water Resources

Article 1.—Definitions

5-1-4. Water flowmeter specifications.

(a) Each water flowmeter required by the chief engineer on or after the effective date of this regulation shall meet the following minimum requirements:

(1) Be certified by the manufacturer to register neither less than 98 percent nor more than 102 percent of the actual volume of water passing the water flowmeter when installed according to the manufacturer's instructions and to be reasonably likely to meet the requirements specified in K.A.R. 5-1-9(a)(1) throughout the water flowmeter's normal operating range without further adjustment or calibration;

(2) be certified by the manufacturer to have undergone an effective quality assurance program that includes, at a minimum, wet testing of a random sample of production line water flowmeters with water flowmeter test equipment that has been tested annually and found to be accurate by standards that conform to the specifications, tolerances, and other technical requirements for weights, measures and weighing, and measuring devices established by the national institute of standards and technology or the international bureau of weights and measures;

(3) clearly indicate the model number and serial number of the water flowmeter and the direction of water flow in a manner that is legible and permanent for the expected operational life of the water flowmeter;

(4) be equipped with a weatherproof register that is sealed from all water sources;

(5) be equipped with a register that is readable at all times, whether the system is operating or not;

(6) be able to be sealed by an authorized representative of the chief engineer to prevent unauthorized manipulation of, tampering with, or removal of the water flowmeter;

(7) be equipped with an identifiable manufacturer-approved measuring chamber through which all water flows;

(8) be calibrated at the factory and be reasonably likely to maintain accurate calibration throughout the operational life of the water flowmeter; and

(9) be equipped with a totalizer that meets the following criteria:

(A) Is continuously updated to read directly in acre-feet, acre-inches, or gallons;

(B) has sufficient capacity, without cycling past zero more than once each year, to record the annual quantity authorized by the water right or the quantity of water actually diverted in any one calendar year, whichever is greater;

(C) reads in units small enough to determine the annual water use to within the nearest 0.1 percent of the total annual permitted quantity of water;

(D) has a dial or counter that can be timed for not more than a 10-minute period to accurately determine the rate of flow under normal operating conditions; and

(E) has a nonvolatile memory.

(b) All water flowmeters required by the chief engineer on or after the effective date of this regulation, except positive displacement water flowmeters, full-bore electromagnetic water flowmeters, single-jet water flowmeters, multi-jet water flowmeters, and fluidic oscillator water flowmeters, shall be equipped with flow-straightening vanes that are designed or approved by the manufacturer and installed at the upstream throat of the water flowmeter chamber.

(c) All water flowmeters required by the chief engineer that are installed or repaired after the effective date of this regulation and have a nominal pipe diameter of four inches or greater shall be equipped with an anti-reversing totalizer or other mechanism that will prevent reverse flow from altering the forward totalizer reading of the water flowmeter.

(d) Each battery-operated water flowmeter required by the chief engineer on or after the effective date of this regulation shall be equipped with a battery system that is of sufficient capacity to operate the water flowmeter for a minimum of two years in reasonably expected seasonal conditions in Kansas conditions.

(e) Each turbine water flowmeter required by the chief engineer on or after the effective date of this regulation, including each propeller water flowmeter, shall be equipped with a sensor that has a diameter that is no less than one-half the inside diameter of the water flowmeter's measuring chamber.

(f) Each saddle water flowmeter and each insertion water flowmeter shall clearly indicate, in a manner that is durable for the expected operational life of the water flowmeter, the inside diameter that the water flowmeter is calibrated for.

(g) Each water flowmeter required by the chief engineer on or after the effective date of this regulation shall be manufactured or sealed in such a way that, if prior authorization is not obtained from the manufacturer, an authorized representative of the manufacturer, or the chief engineer, the water flowmeter's totalizer reading and calibration cannot be altered, and the water flowmeter's totalizer cannot be prevented from registering flow, without any tampering or alteration being evident.

(h) Each water flowmeter that was required by the chief engineer to be installed before the effective date of this regulation, either as a condition of an approval of an application or by an order of the chief engineer or a regulation adopted by the chief engineer, shall meet the following minimum specifications:

(1) Be of the proper size, pressure rating, and style, and have a normal operating range sufficient to accurately measure the water flow passing through the water flowmeter under normal operating conditions; and

(2) meet the requirements specified in K.A.R. 5-1-9(a)(1); or

(3) be replaced with a water flowmeter that meets the requirements specified in this regulation and is installed in accordance with the requirements of K.A.R. 5-1-6.

(i) A water flowmeter installed in the diversion works or a distribution system for a water right authorized for municipal use shall not be subject to the requirements

specified in subsection (g) if an accurate record of water use can be determined by readings from at least one alternate water flowmeter in the same diversion works or distribution system.

(j) The quality assurance program specified in subsection (a)(2) shall include, at a minimum, wet testing a random sample of production line water flowmeters. The minimum number of samples required to be tested shall be determined using a confidence interval of 90 percent, an expected compliance rate of 95 percent, and an acceptable error rate of two percent. The minimum number of samples of each model of water flowmeter required to be tested shall be calculated by multiplying 1,300 times the expected annual average production of that model of water flowmeter divided by the amount that equals four times the annual production of that model of water flowmeter plus 1,300.

(k) Documentation of the testing required in paragraphs (a)(1) and (2) shall be maintained by the manufacturer of the water flowmeter for a period of at least five years and shall be made available to the chief engineer during normal business hours upon request.

(Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-706a and K.S.A. 82a-706c; effective Sept. 22, 2000; amended Oct. 24, 2003; amended May 21, 2010; amended Aug. 14, 2026.)

***** Authenticated Kansas Administrative Regulation *****