

Kansas Administrative Regulations

Department of Health and Environment

Article 45.—Underground Hydrocarbon Storage Wells and Associated Brine Ponds

28-45-14. Storage well and cavern construction requirements.

(a) Each permittee shall ensure that each storage well is constructed with surface casing according to the following requirements:

(1) The surface casing shall be set through all fresh and usable water formations and into competent bedrock.

(2) The surface casing shall be cemented by circulating cement through the bottom of the casing to the surface.

(3) The annular space between the casing and the formation shall be filled with cement.

(b) Each permittee of a new storage well shall construct the storage well with double casing protection that consists of an intermediate casing and a production casing set into the upper part of the bedded salt according to the following requirements:

(1) The intermediate casing shall extend at least 105 feet into the bedded salt. The production casing shall extend at least to the depth of the intermediate casing.

(2) The annular spaces between the intermediate casing and the production casing and between the intermediate casing and the formation shall be filled with cement by circulating cement through the bottom of the casing to the surface.

(c) Each permittee of an existing storage well that does not have double casing protection shall complete a casing evaluation as specified in K.A.R. 28-45-17.

(d) For each storage well, the permittee shall install a casing and a brine string that meet the performance standards for collapse resistance, internal yield pressure, and pipe body yield strength for the storage well's setting depths using criteria specified in the American petroleum institute's bulletin 5C2, twenty-first edition, dated October 1999, which is hereby adopted by reference.

(e) Each permittee shall ensure that the brine string in each storage well is constructed with a weep hole located at least one foot above the bottom of the brine string.

(f) Each permittee shall ensure that only new steel casing is installed in a new storage well. Used parts, materials, and equipment that have been tested and certified for continued service may be used for repairs.

(g) Each permittee shall meet the following cementing requirements for each storage well:

(1) The cement shall be compatible with the formation water and the drilling fluids. Salt-saturated cement shall be used when cementing through the salt section.

(2) The cement across the confining zone and to the surface shall have a compressive strength of at least 1,000 pounds per square inch (psi).

(3) Remedial cementing shall be completed if there is evidence of either of the following:

(A) Underground communication between the confining zone and other horizons; or

(B) annular voids that would allow either fluid contact with the casing or channeling across the confining zone or above the confining zone.

(4) The following requirements for cement evaluation shall apply:

(A) Samples shall be obtained at the start and end of the cementing operation for evaluation of cement properties. All cement samples collected shall be representative of the cement being utilized.

(B) All samples shall be tested for compressive strength.

(5) A cement bond log shall be completed on the surface casing, intermediate casing, and production casing after the cement has cured for at least 72 hours.

(h) If available cement bond logging tools cannot be used, the permittee shall submit to the secretary a request for approval for use of an alternative method or information establishing that a successful cement job has been completed. The alternative method or information may be approved if the secretary determines the method or information to be protective of public health, safety, and the environment.

(i) No permittee shall use a casing patch, unless authorized by the secretary in writing. The use of a casing patch may be authorized if the secretary determines the use to be protective of public health, safety, and the environment.

(j) Each permittee shall submit to the department an initial casing evaluation for the entire cased interval for the innermost casing string or for the cemented liner that extends the entire length of the casing when well construction is complete.

(k) Each permittee shall verify the mechanical integrity of the production casing seat after well construction is complete, as specified in K.A.R. 28-45-17.

(l) Each permittee shall contain, in a tank, all drilling fluids, drilling mud, drill cuttings, and workover wastes from any drilling operation or workover. Drilling fluids, drilling mud, drill cuttings, and workover wastes shall be disposed of in a manner determined by the secretary to be protective of public health, safety, and the environment.

(m) A professional engineer or a professional geologist, or the professional engineer's or professional geologist's designee, shall supervise the installation of each storage well.

(n) Each permittee shall ensure that each storage well meets the safety and security measures specified in K.A.R. 28-45-13.

(Authorized by and implementing K.S.A. 2022 Supp. 55-1,117; effective, T-28-4-1-03, April 1, 2003; effective Aug. 8, 2003; amended Aug. 9, 2024.)

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