Kansas Administrative Regulations

Department of Health and Environment

Article 16.—Water Pollution Control—Municipal, Commercial and Industrial Wastewater Lagoon Requirements.

28-16-166. Requirements for impermeable synthetic membrane liners in municipal or commercial wastewater treatment system lagoons.

(a) The following requirements shall apply to municipal or commercial impermeable synthetic membrane liners:

(1) The liner shall be at least 30 mils (0.030 inch) in thickness.

(2) The engineer designing the wastewater lagoon shall obtain a certification from the liner manufacturer that includes the following:

(A) Confirmation that the specified liner is compatible for use with the proposed wastewater to be retained or treated;

(B) confirmation that the specified liner is resistant to UV (ultraviolet) light; and

(C) the manufacturer's estimated leakage, permeability, or transmissivity rate of the specified liner expressed in units of volume per area per time (gallons per square feet per day) for a properly installed liner. The leakage, permeability, or transmissivity rate shall reflect the expected rate of movement of fluids through a synthetic membrane liner when considering the properties of the liner material, liner thickness, normally expected manufacturing defects in the liner material, and normally expected defects associated with the seaming and installation process.

(b) Compaction of the wastewater treatment lagoon embankments and upper six inches of the interior lagoon bottom below the synthetic liner shall be a minimum of 95 percent of the maximum standard proctor density at optimum moisture to optimum moisture plus three percent. The maximum thickness of the layers of material to be compacted shall not exceed six inches. The moisture content range of the soils being compacted shall be optimum moisture to optimum moisture plus three percent. The maximum size of dirt clods in the compacted soil shall be less than one inch in diameter.

(c) The liner shall be anchored at the top of the wastewater lagoon dike. The method of anchoring the liner shall conform to the manufacturer's installation instructions.

(d) The liner shall be installed in accordance with the liner manufacturer's instructions and guidance. Either the liner shall be installed by a contractor experienced in the installation of impermeable synthetic membrane liners, or the contractor shall provide for the on-site supervision of the liner installation by an individual that has experience installing liners.

(e) The construction plans and specifications shall include provisions for the use of a reliable seam-testing method that shall be used to verify the adequacy of the seaming process. The methods for destructive and non-destructive seam testing shall be specified, along with a protocol describing the number of tests per lineal foot of field seam, the size of the destructive test specimen required, and any other quality control provisions recommended by the liner manufacturer. All field seams shall be subjected to non-destructive testing.

(f) The Kansas "minimum standards of design for water pollution control facilities" shall be utilized in the design and the establishment of construction criteria for wastewater lagoons, unless different criteria are specified in K.A.R. 28-16-160 through K.A.R. 28-16-174. If there is any difference between the design and construction criteria specified in K.A.R. 28-16-160 through K.A.R. 28-16-174 and either the Kansas "minimum standards of design for water pollution control facilities" or regulations in articles 5, 13, or 30, the design and construction criteria specified in K.A.R. 28-16-160 through K.A.R. 28-16-174 shall control.

(g) A minimum of two feet of in situ or compacted soil shall be provided beneath the liner or bedding material.

(h) Each applicant or permittee shall develop and submit with the construction plans and specifications a contingency plan, for KDHE review and consideration for approval, that outlines procedures for pond containment and operation during periods of maintenance and during periods of required dewatering if a liner fails or needs to be repaired.

(i)(1) Each permittee shall immediately cease operations or shall comply with the instructions of the secretary, if the secretary determines that an imminent threat or the

potential for an imminent threat to public health or the environment exists due to any unsafe operating condition. Considerations regarding an imminent threat or the potential for an imminent threat to public health or the environment shall include the following:

(A) The pollutant or pollutants involved;

(B) the integrity of the impermeable synthetic membrane liner;

(C) the depth to groundwater;

(D) the monitoring well or water supply well data;

(E) the mobility of the pollutant or pollutants through soil or groundwater;

(F) the potential exposure to the public; and

(G) the potential for uncontrolled release into the environment.

(2) The permittee may resume operations if the secretary determines that the wastewater lagoon no longer poses a risk to public health and the environment. (Authorized by K.S.A. 2004 Supp. 65-171d and K.S.A. 65-171h; implementing K.S.A. 65-164, K.S.A. 65-165, K.S.A. 65-166, K.S.A. 2004 Supp. 65-171d, and K.S.A. 65-171h; effective May 20, 2005.)

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