



Ohio Administrative Code

Rule 3745-525-201 Design criteria for new CCR landfills and any lateral expansion of a CCR landfill, 40 C.F.R. 257.70.

Effective: October 1, 2026

(A)

- (1) New CCR landfills and any lateral expansion of a CCR landfill shall be designed, constructed, operated, and maintained with either a composite liner that meets the requirements of paragraph (B) of this rule or an alternative composite liner that meets the requirements in paragraph (C) of this rule, and a leachate collection and removal system that meets the requirements of paragraph (D) of this rule.
- (2) Prior to construction of an overfill the underlying surface impoundment shall meet the requirements of paragraph (D) of rule 3745-525-720 of the Administrative Code.

(B) A composite liner shall consist of two components; the upper component consisting of, at a minimum, a thirty-mil geomembrane liner (GM), and the lower component consisting of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than 1×10^{-7} centimeters per second (cm/sec). GM components consisting of high density polyethylene (HDPE) shall be at least sixty-mil thick. The GM or upper liner component shall be installed in direct and uniform contact with the compacted soil or lower liner component. The composite liner shall be as follows:

- (1) Constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrogeologic forces), physical contact with the CCR or leachate to which the materials are exposed, climatic conditions, the stress of installation, and the stress of daily operation.
- (2) Constructed of materials that provide appropriate shear resistance of the upper and lower component interface to prevent sliding of the upper component including on slopes.
- (3) Placed upon a foundation or base capable of providing support to the liner and resistance to pressure gradients above and below the liner to prevent failure of the liner due to settlement, compression, or uplift.
- (4) Installed to cover all surrounding earth likely to be in contact with the CCR or leachate.

(C) If the owner or operator elects to install an alternative composite liner, all of the following requirements shall be met:

- (1) An alternative composite liner shall consist of two components; the upper component consisting of, at a minimum, a thirty-mil GM, and a lower



3745-525-201

2

component, that is not a geomembrane, with a liquid flow rate no greater than the liquid flow rate of two feet of compacted soil with a hydraulic conductivity of no more than 1×10^{-7} cm/sec. GM components consisting of high density polyethylene (HDPE) shall be at least sixty-mil thick. If the lower component of the alternative liner is compacted soil, the GM shall be installed in direct and uniform contact with the compacted soil.

- (2) The owner or operator shall obtain certification from a qualified professional engineer that the liquid flow rate through the lower component of the alternative composite liner is no greater than the liquid flow rate through two feet of compacted soil with a hydraulic conductivity of 1×10^{-7} cm/sec. The hydraulic conductivity for the two feet of compacted soil used in the comparison shall be no greater than 1×10^{-7} cm/sec. The hydraulic conductivity of any alternative to the two feet of compacted soil shall be determined using recognized and generally accepted methods. The liquid flow rate comparison shall be made using equation 1 of this rule, which is derived from Darcy's Law for gravity flow through porous media.

Equation 1:

$$Q/A = q = k[(h/t) + 1]$$

Where:

Q = flow rate (cubic centimeters/second).

A = surface area of the liner (squared centimeters).

q = flow rate per unit area (cubic centimeters/second/squared centimeter).

k = hydraulic conductivity of the liner (centimeters/second).

h = hydraulic head above the liner (centimeters).

t = thickness of the liner (centimeters).

- (3) The alternative composite liner shall meet the requirements specified in paragraphs (B)(1) to (B)(4) of this rule.
- (D) The leachate collection and removal system shall be designed, constructed, operated, and maintained to collect and remove leachate from the landfill during the active life and post-closure care period. The leachate collection and removal system shall be:



3745-525-201

3

- (1) Designed and operated to maintain less than a thirty-centimeter depth of leachate over the composite liner or alternative composite liner.
 - (2) Constructed of materials that are chemically resistant to the CCR and any non-CCR waste managed in the CCR unit and the leachate expected to be generated, and of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying waste, waste cover materials, and equipment used at the CCR unit.
 - (3) Designed and operated to minimize clogging during the active life and post-closure care period.
- (E) Prior to construction of the CCR landfill or any lateral expansion of a CCR landfill, the owner or operator shall demonstrate and obtain a certification from a qualified professional engineer that the design of the composite liner (or, if applicable, alternative composite liner) and the leachate collection and removal system meets the requirements of this rule.
- (F) Upon completion of construction of the composite liner (or, if applicable, alternative composite liner) and the leachate collection and removal system or shall obtain a certification from a qualified professional engineer that the design of the composite liner (or, if applicable, alternative composite liner) and the leachate collection and removal system have been constructed in accordance with the requirements of this rule.
- (G) The owner or operator of the CCR unit shall comply with the recordkeeping requirements specified in paragraph (F) of rule 3745-525-50 of the Administrative Code, the notification requirements specified in paragraph (F) of rule 3745-525-60 of the Administrative Code, and the internet requirements specified in paragraph (F) of rule 3745-525-70 of the Administrative Code.