



Minimum Separation Distance Required to not Install a Liner System

THIS POLICY DOES NOT HAVE THE FORCE OF LAW.

Applicable Construction and Demolition Debris Rules

OAC 3745-400-09(A)(1)

OAC 3745-400-09(A)(2)

Purpose

The purpose of this document is to clarify the provisions of OAC Rule 3745-400-09(A)(2) with regards to what geologic units meet the provisions of this rule.

Applicability

This document is applicable to owners and operators of construction and demolition debris (C&DD) facilities.

Background

OAC Rule 3745-400-09(A)(1) requires that a C&DD facility have a liner system unless the facility's siting is consistent with the provisions of OAC Rule 3745-400-09(A)(2).

OAC Rule 3745-400-09(A)(2) requires a liner system at a C&DD facility unless the in situ and/or added geologic material separating the uppermost aquifer system from the bottom of the leachate collection system or any debris placement has the following:

- a) A minimum thickness of five feet with a maximum permeability of 1×10^{-5} cm/sec.
- b) A maximum permeability equivalent to two feet of soil with a permeability of 1×10^{-6} cm/sec.

Many questions have been raised as to how these requirements (two thicknesses and two permeabilities) are to be interpreted.

Procedure

OAC Rule 3745-400-09(A)(1) states in part that "the in situ and/or added geologic material separating the uppermost aquifer system(s) from the bottom of the leachate collection system in unfilled areas meets the criteria in paragraphs (A)(2) and (A)(3) of this rule..."

OAC 3745-400-09(A)(1) requires that there be a separation between the bottom of the leachate collection system and the uppermost aquifer system(s) beneath a C&DD facility in accordance with OAC Rule 3745-400-09(A)(2) before the liner provisions can be waived. For purposes of interpreting OAC 3745-400-09(A)(1), the Ohio EPA considers the bottom of the leachate collection system to be the parts of the leachate collection system adjacent to the in situ or added geologic material or the liner of the facility. This includes the parts of the leachate collection system located on the side walls of the facility excavation.

"The in situ and/or added geologic material shall have...A minimum thickness of five feet"

This part of OAC Rule 3745-400-09(A)(2) requires a minimum of five feet of separation between the bottom of the leachate collection system or any debris placement and the uppermost aquifer system in order to obtain relief from the liner requirements.

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“The in situ and/or added geologic material shall have... a maximum permeability of 1×10^{-5} cm/sec.”

This part of OAC Rule 3745-400-09(A)(2) requires the C&DD facility owner/operator to only count toward the five foot separation distance, those geologic units or added material that have a permeability of 1×10^{-5} cm/sec or less. An example of this is shown in Figure 1. A separation distance, a total of eight feet, exists between the proposed placement of debris and the uppermost aquifer system. However, only three feet of this distance has a permeability of less than 1×10^{-5} cm/sec, so the proposed C&DD facility does not meet the criteria of the rule.

“The in situ and /or added geologic material shall have...A maximum permeability equivalent to two feet of soil with a permeability of 1×10^{-6} cm/sec.”

This section of OAC Rule 3745-400-09(A)(2) requires that the separation distance be composed of material that is equivalent overall in permeability to two feet of material with a permeability of 1×10^{-6} cm/sec. The separation distance can be more than five feet of material to meet this portion of the rule. In Figure 2, a proposed C&DD facility has 21 feet of separation with 20 feet of that separation composed of geologic material with a permeability of 1×10^{-5} cm/sec and the remainder is composed of several sand seams with much higher permeabilities. This separation distance meets all three portions of the rule as there is more than five feet of separation with a permeability of no greater than 1×10^{-5} cm/sec and the entire separation distance is equivalent to two feet of material with a permeability of 1×10^{-6} cm/sec (20 feet of 1×10^{-5} cm/sec material is equivalent to 2 feet of 1×10^{-6} cm/sec material).

Figure 3 shows an example where the proposed C&DD facility also is able to obtain relief from the liner requirement. There is ten feet of separation between the uppermost aquifer system and the limits of debris placement. The geologic material within these ten feet is composed of three feet of material with a permeability of 1×10^{-6} cm/sec and seven feet of material with a permeability of 1×10^{-5} cm/sec. The ten feet of material meets the provision of the first two parts of these rules because it has more than five feet of separation of material with a permeability of at least 1×10^{-5} cm/sec. The ten feet of geologic material is equivalent to 3.7 feet of material with a permeability of 1×10^{-6} cm/sec. This is more than the two feet required for the exemption from the liner requirement. If on the other hand, the ten feet of geologic material was completely composed of material with a permeability of 1×10^{-5} cm/sec, the material would be equivalent to only one foot of material with a permeability of 1×10^{-6} cm/sec, which does not meet the criteria of the rule.

Contact

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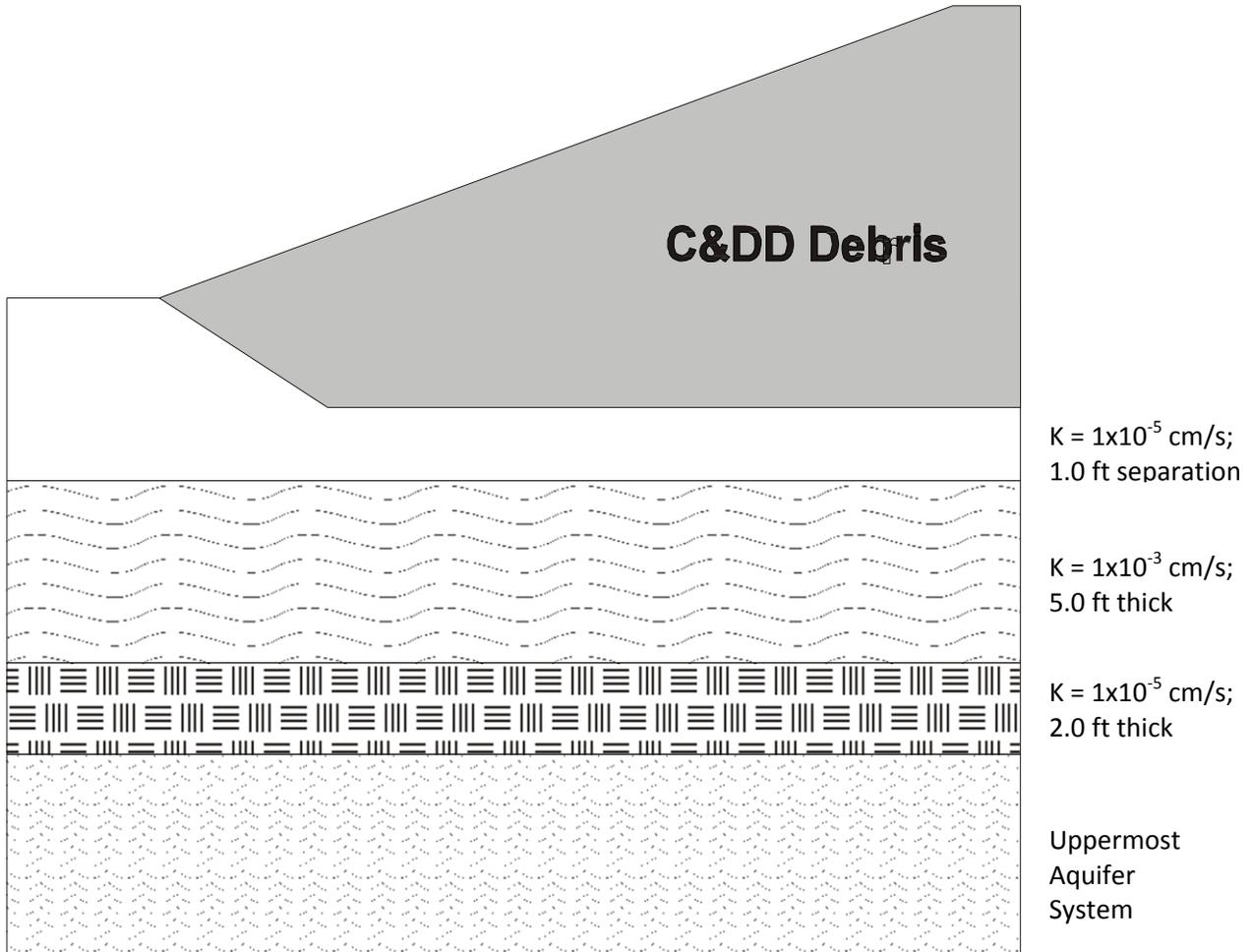
Disclaimer

This document is intended for guidance purposes only. Completion of the activities and procedures outlined in this document shall not release an owner or operator from any requirement or obligation for complying with Ohio Revised Code (ORC) Chapter 3734 or 3714 if appropriate, the OAC rules adopted thereunder, or any authorizing documents or orders issued thereunder, nor shall it prevent Ohio EPA from pursuing enforcement actions to require compliance with ORC Chapter 3734 or 3714, the OAC rules or any authorizing documents or orders issued thereunder.

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Figure 1

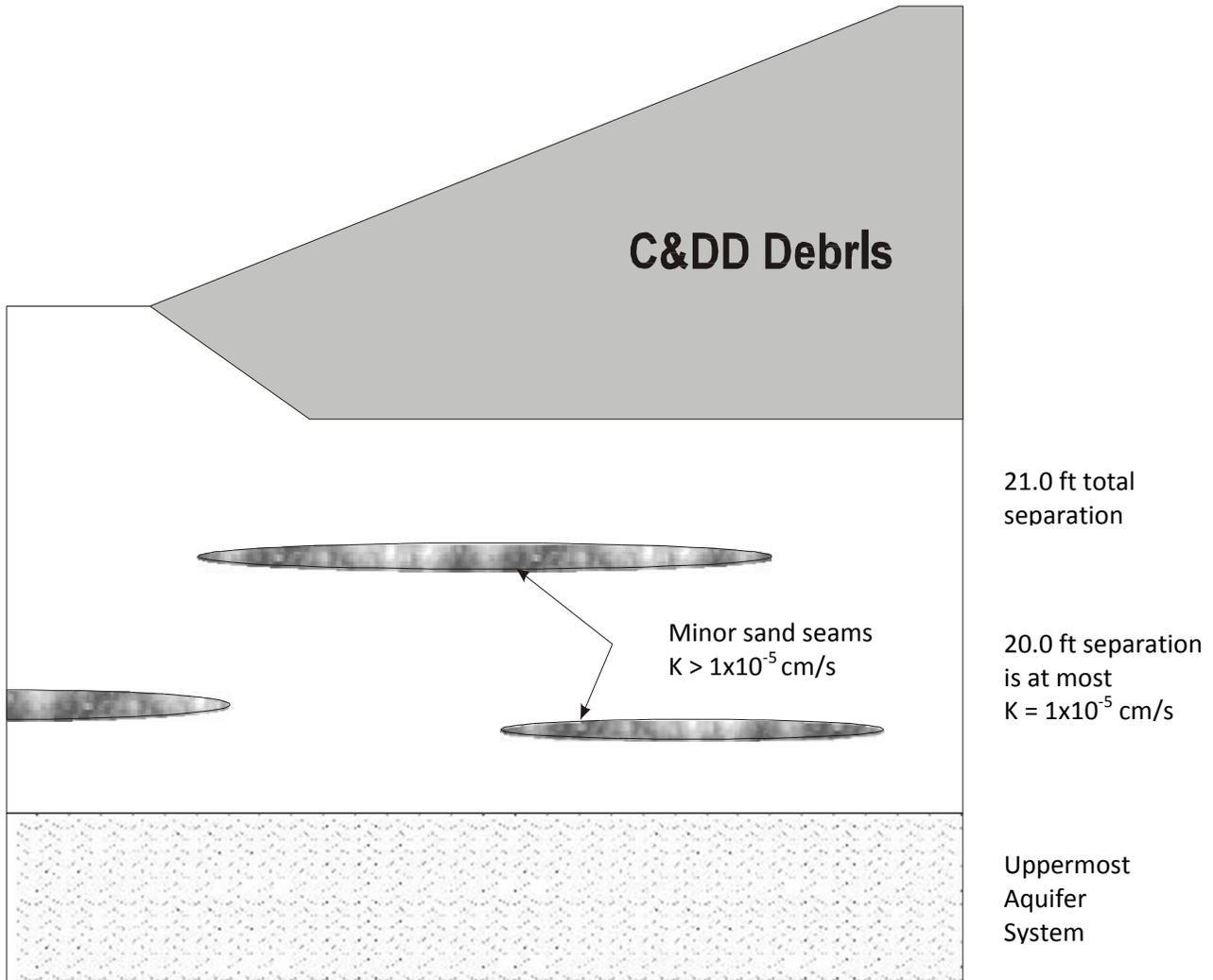
Permeability of Material



Minimum Separation Distance Required to not Install a Liner System

Figure 2

Equivalency Demonstration



Minimum Separation Distance Required to not Install a Liner System

Figure 3

Equivalency Demonstration

