

**Proposed  
OAC Rule 3745-27-08**

**Sanitary Landfill Facility  
Construction**

# Overall Changes

The old rule has been completely reformatted and rewritten using a “bottom to top” arrangement.

Changes may seem extensive, but are mostly cosmetic with the exception of a few areas.

# Reference Tool

This presentation not only helps me inform you of the changes, but can also be used as a reference guide you help you locate a particular section of the new rule.

# Paragraph Outline

- (A) Applicability
- (B) Engineered components for landfill facilities
- (C) General design criteria
- (D) Design, construction, and testing specifications

# Paragraph Outline (con't)

- (E) Test pad construction and certification
- (F) [Reserved]
- (G) Pre-construction interface testing and reporting
- (H) Construction certification report

# Paragraph (A)

## Applicability

Once a permit is issued to a facility, the permit is what establishes the design and construction specifications, not the rules.

If there are differences between the rule and the permit, the compliance standard is based on the permit.

# Paragraph (B)

## Engineered Components for Landfills

(B)(1) Required components

(B)(2) Supplemental components

(B)(3) Optional Components

# Paragraph (B)(1)

## Required Components

- (a) Survey marks
- (b) Prepared in-situ foundation
- (c) Composite liner system
- (d) Leachate collection system

# Paragraph (B)(1)

## Required Components (con't)

- (e) Surface water controls
- (f) Composite cap system
- (g) Explosive gas control system
- (h) Access roads

# Paragraph (B)(2)

## Supplemental Components

May be required to address site specific conditions.

- (a) Permanent ground water controls
- (b) Structural fill
- (c) Added geologic material
- (d) Liner cushion layer

# Paragraph (B)(2)

## Supplemental Components (con't)

- (e) Leachate storage tanks, if no direct discharge
- (f) Separatory liner/leachate collection system
- (g) Interim composite liner system [Subtitle-D]
- (h) Gas collection system

# Paragraph (B)(3)

## Optional Components

Owner/operator may propose for use.

- (a) GCL in lieu of clay in liner system
- (b) GCL in lieu of clay in the cap system
- (c) Subbase for GCL in the cap system, if used
- (d) Transitional cover.

# Paragraph (C)

## General Design Criteria

The design objectives of the engineered components.

(1) Composite liner system ... (b) 2.0 % after settlement [prim. and sec.] for new facilities or lateral expansions of existing facilities.

# Paragraph (C)

## General Design Criteria (con't)

Currently operating facilities with approved permits do not need to comply with this requirement.

They must continue to follow their approved authorizing document(s).

# Paragraph (C)

## General Design Criteria (con't)

However, if you are planning, or think you might be planning a future vertical expansion, Ohio EPA will re-evaluate the slopes of the bottom liner (constructed and unconstructed), while accounting for any additional settlement, using the following two standards:

# Paragraph (C)

## General Design Criteria (con't)

(C)(1)(c) For existing facilities, where an o/o proposes to vertically expand over a bottom liner constructed after 12/31/03:

The slope of the bottom liner under the expansion must still meet (C)(1)(b) after accounting for the additional settlement.

# Paragraph (C)

## General Design Criteria (con't)

(C)(1)(d) For existing facilities, where an o/o proposes to vertically expand over a bottom liner constructed before 12/31/03:

The slope of that bottom liner must maintain positive drainage and max. 1-foot of head after accounting for the additional settlement.

# Paragraph (C)

## General Design Criteria (con't)

What does all this mean ???

For those new facilities or existing facilities that might be vertically expanding at some point in the future, a conservative initial design may be necessary, or a re-evaluation and re-design of unconstructed liner may be appropriate.

# Paragraph (C)

## General Design Criteria (con't)

Owners/operators have until the first bottom liner construction event occurring after 12/31/03 to alter or modify any unconstructed portion of their facility to account for any future expansion plans.

# Paragraph (C)

## General Design Criteria (con't)

### (2) Separatory liner/leachate collection system

Does not contain a specific design, but does include other specifications (i.e. serve as a barrier, manage explosive gas buildup, >10% slope, and max. 1-foot of head)

# Paragraph (C)

## General Design Criteria (con't)

- (3) Leachate collection systems (0.5% after settlement)
- (4) Composite cap systems
- (5) Explosive gas control system
- (6) Geosynthetic materials (i.e GCL & FML)

# Paragraph (C)

## General Design Criteria (con't)

(7) Stability of the engineered components

Contains factors of safety, only. See the PTI rule and the GeoRG policy for details.

# Paragraph (D)

## Design, Construction, and Testing

Applies to all engineered components, regardless of whether they are required, supplemental, optional.

- (1) Survey marks
- (2) Surface water control structures

# Paragraph (D)

## Design, Construction, & Testing (con't)

- (3) Sedimentation ponds
- (4) Permanent ground water controls
- (5) In-situ foundations
- (6) Structural fill
- (7) Added geologic material (from guidance)

# Paragraph (D)

## Design, Construction, & Testing (con't)

- (8) Recompacted soil liners (removed 25% clay and 50% fines requirements, rely more heavily on test pads specifications)
- (9) GCLs
- (10) FMLs
- (11) Liner cushion layers

# Paragraph (D)

## Design, Construction, & Testing (con't)

- (12) Leachate collection layers ( $1 \times 10^{-2}$  cm/s for granular, and added drainage nets)
- (13) Leachate collection pipes
- (14) Filter layers
- (15) Sumps
- (16) Leachate conveyance apparatuses

# Paragraph (D)

## Design, Construction, & Testing (con't)

- (17) Leachate storage tanks
- (18) Access roads
- (19) Transitional covers (replaced interim final)
- (20) Gas collection systems
- (21) Cap soil barrier layers
- (22) Engineered subbases for GCLs in caps

# Paragraph (D)

## Design, Construction, & Testing (con't)

- (23) GCLs in the cap system
- (24) FMLs in the cap system
- (25) Cap drainage layers
- (26) Cap protection layers
- (27) Explosive gas control systems

# Paragraph (E)

## Test Pad Construction & Certification

Test pad construction specifications determine how the RSL is to be constructed, not the rules.

30" thick

Alternate to test pads allowed

# Paragraph (F) Reserved

Still “reserved”

# Paragraph (G)

## Pre-Construction Interface Testing

Pre-construction shear strength testing applies to all geosynthetic-geosynthetic interfaces and all soil-geosynthetic interfaces.

Twice prior to initial construction, and once at every subsequent construction event for weakest interface or condition.

# Paragraph (H)

## Construction Certification Report

- (1) Narrative
- (2) Alterations
- (3) Results of all testing
- (4) Results of all surveys
- (5) Record drawings
- (6) Summary of survey mark establishment

# Paragraph (H)

## Construction Certification Report (con't)

- (7) Qualification of testing personnel
- (8) Oil and gas well abandonment
- (9) Notarized statement

# Appendix I

## Liner Thickness Reduction Calculation

No change

# **Applicability**

## **New Applications**

For applications submitted after effective date of this rule, and for applications under review during the effective date of this rule:

The facility's design and construction specifications must meet this entire rule.

# Applicability

## Existing Facilities

Paragraphs (B), (C), and (D) do not apply.

Paragraph (E) [test pad construction] applies only if the approved permit does not include test pad construction specifications. If it doesn't, then whenever a new test pad is constructed after the effective date of this rule, it must comply with (E).

# Applicability

## Existing Facilities

Only a portion of paragraph (G) applies.

An initial use does not apply. But, the one subsequent comparison for interface testing is required for the weakest interface. The information must be submitted in the construction certification report. This applies to an applicable construction event performed after the effective date of this rule.

# **Applicability**

## **Existing Facilities**

Paragraph (H) [construction certification report] applies to any applicable construction event performed after the effective date of this rule.

# Residual Waste Facilities Changes

Changed the survey mark language to parallel the MSW and ISW rules.

Added landfill stability language to parallel the MSW and ISW rules.

**Questions?**

# Contact Information

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Proposed rules:

[www.epa.state.oh.us/dsiwm/pages/draft\\_rule.html](http://www.epa.state.oh.us/dsiwm/pages/draft_rule.html)