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3745-512-330

Liner system flexible membrane liner.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, test methods, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-500-03 of the Administrative Code titled "Incorporation by reference."]

- (A) When immediately beneath the liner system flexible membrane liner, the liner system recompacted soil liner, geosynthetic clay liner, in situ foundation, added geologic material, structural fill consisting of soil, or embankment, as applicable, shall conform to the following:
- (1) The surface shall be free of sharp edged protrusions and of any particle protruding more than 0.25 inches.
 - (2) Contact with the liner system flexible membrane liner shall be direct and uniform.
- (B) The liner system flexible membrane liner shall be a high density polyethylene (HDPE) geomembrane that is at least sixty mils thick, unless an alternative material or thickness is approved in accordance with rule 3745-512-17 of the Administrative Code.
- (C) The liner system flexible membrane liner shall be seamed in conformance with the following:
- (1) All flexible membrane liner panels shall be seamed to form one continuous liner.
 - (2) The seaming material used shall be physically and chemically resistant to damage caused by waste, C&DD, leachate, and gas that may come in contact with the seams.
 - (3) Under sumps where two flexible membrane liners are specified in the authorizing document, the two liners shall be seamed together.
- (D) Testing of the liner system flexible membrane liner shall be performed by the owner or operator in conformance with the following:
- (1) Pre-construction testing on representative samples to determine shear strength in accordance with rule 3745-512-10 of the Administrative Code.
 - (2) Construction testing in accordance with the following, unless the manufacturer's specifications for testing are more stringent in which case the manufacturer's specifications shall be used:

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- (a) The performance of each seaming apparatus in use each day shall be tested using peel tests according to ASTM D6392 (integrity of seams) and performed on scrap pieces of the flexible membrane liner material when an apparatus is started, operators change, an apparatus is restarted, and at the beginning of each seaming period.
 - (b) Nondestructive testing shall be performed on one hundred per cent of the flexible membrane liner seams, including repairs.
 - (c) A nondestructive test of seams in accordance with ASTM D4437 shall be considered a failed test if any of the following occur:

 - (i) For air pressure testing between twenty-five and thirty pounds per square inch, the following:

 - (a) When performed on high density polyethylene (HDPE) with a thickness not less than sixty mils, a drop of at least three pounds per square inch occurs or there is an unsustained pressure.
 - (b) When performed on high density polyethylene (HDPE) with a thickness less than sixty mils, a drop of at least four pounds per square inch occurs or there is an unsustained pressure.
 - (ii) For a nondestructive test other than in accordance with paragraph (D)(2)(c)(i) of this rule, criteria for detection of any discontinuity as appropriate for the method shall be used to determine if the test is a failed test.
 - (d) Destructive testing for peel according to ASTM D6392 (integrity of seams) shall be performed on randomly selected samples of seam, excluding repairs of destructive testing locations, at a frequency of not less than one per five hundred feet per person per seaming apparatus.
 - (e) A peel test shall be considered a failed test if failure occurs in any part of the seam.
- (E) Certification of the liner system flexible membrane liner by the owner or operator shall include the following:
- (1) Plan views of the deployment of the flexible membrane liner panels and the locations, as constructed, and identification of all destructive tests and of all repairs made by the owner or operator.
 - (2) If the flexible membrane liner is not placed directly above the recompacted soil liner, the plan views described in paragraph (E)(1) of this rule shall also include

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a topographic representation of elevations of the flexible membrane liner, including the run-out if applicable, as constructed.

- (3) If the flexible membrane liner is not placed directly above the recompacted soil liner, the table of survey information described in rule 3745-512-50 of the Administrative Code and a comparison of the survey data to the elevations in the authorizing document.
- (4) Results of all construction testing performed under paragraph (D)(2) of this rule.
- (5) Results of all testing and verification that deployment and seaming of the flexible membrane liner meets the standards in paragraphs (A) to (C) of this rule and the specifications in the authorizing document. If an alternative material is used, the evaluation conducted pursuant to rule 3745-512-17 of the Administrative Code was submitted prior to use of the alternative material and therefore verification is not required to be submitted with the construction certification report under this rule. However, results of all testing to verify that the alternative material meets material specifications are required in the construction certification report.