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3745-512-420

Leachate collection system geocomposite drainage layer.

(A) The leachate collection system geocomposite drainage layer shall meet the following criteria:

- (1) Be composed of polyethylene, unless an alternative material is approved in accordance with rule 3745-512-17 of the Administrative Code.
- (2) The filter fabric components shall have an apparent opening size necessary to retain the permeable material overlying the geocomposite.
- (3) The filter fabric components shall have an apparent opening size and either a porosity or percentage of open area available to resist clogging by adjacent soil.
- (4) Have a minimum transmissivity to ensure that the leachate collection system limits the depth of leachate above the basal elevations of the leachate collection system to not exceed one foot, except in a sump. The minimum transmissivity is calculated by dividing the pre-construction test results for transmissivity, conducted in accordance with rule 3745-512-15 of the Administrative Code, by a factor of safety of 2.0 and appropriate reduction factors for elastic deformation, intrusion, creep deformation, biological clogging, and chemical clogging.
- (5) Be placed by the owner or operator without folds or wrinkles and be overlapped and secured in a manner that will keep the geocomposite in place during placement of overlying materials and be placed and secured in accordance with the manufacturer's specifications.
- (6) Each panel of geocomposite shall be secured by the owner or operator to adjoining panels. The geonet shall be overlapped and secured with cable ties in accordance with the manufacturer's specifications. The top geotextile shall also be overlapped and sewn in accordance with the manufacturer's specifications.

(B) The leachate collection system geocomposite drainage layer shall be overlain by the owner or operator with permeable material. Permeable material shall meet the following criteria:

- (1) Be free of foreign material and deleterious material.
- (2) Be capable of protecting the liner system from the intrusion of objects during construction and operation of the facility.
- (3) Have a hydraulic conductivity not less than that used for the waste or C&DD mass when designing the leachate collection system.

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(4) If shredded tires are used by the owner or operator, the shredded tires shall conform to the following:

(a) Be debaded with no dimension greater than twelve inches in length if the minimum average roll value for weight of the filter fabric component of the geocomposite is less than sixteen ounces per square yard or the puncture resistance is less than three hundred ten pounds as determined by ASTM D4833 (index puncture resistance) as described in rule 3745-500-03 of the Administrative Code.

(b) Have not more than ten per cent of the particles by weight with any dimension greater than twelve inches if the minimum average roll value for weight of the filter fabric component of the geocomposite is not less than sixteen ounces per square yard and the puncture resistance is not less than three hundred ten pounds as determined by ASTM D4833 (index puncture resistance) as described in rule 3745-500-03 of the Administrative Code.

(c) The layer of shredded tires shall have a thickness not more than forty-eight inches once deployment of the shredded tires by the owner or operator is complete. The entire thickness of shredded tires shall be deployed as one lift. Shredded tires may be temporarily used in thicknesses that exceed forty-eight inches to create access roads across the geocomposite for delivery of additional shredded tires into the phase.

(C) Testing of the leachate collection system geocomposite drainage layer and permeable material 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) For geocomposite drainage layer, pre-construction testing on representative samples in accordance with rule 3745-512-15 of the Administrative Code.

(3) For shredded tires used for the permeable material overlying the geocomposite drainage layer, pre-construction testing on representative samples in accordance with rule 3745-512-15 of the Administrative Code.

(D) If shredded tires used for the permeable material overlying the leachate collection system geocomposite drainage layer are not debaded and the leachate collection system is placed above a liner system flexible membrane liner, the owner or operator shall use test pits to determine if the shredded tires have damaged the liner system flexible membrane liner as follows:

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- (1) All test pits shall be dug in the presence of the concurring authority, unless the concurring authority has given prior written authorization for the owner or operator to proceed in the absence of the concurring authority.
- (2) Locations of test pits shall be agreed upon by the owner or operator and the concurring authority. At least one test pit shall be created in each acre where tire shreds were deployed. If any of the following in paragraph (D)(2)(a) or (D)(2)(b) of this rule occur, the test pit shall be located in the area of the occurrence. Additional test pits are necessary if the occurrence was in a large area or occurred in multiple areas.
 - (a) Equipment used to deliver, place, or spread the tire shreds has a ground pressure of more than five pounds per square inch.
 - (b) Tire shreds are deployed in such a manner that the shreds are dragged or pushed across the liner cushion layer.
- (3) Each test pit shall expose at least nine square feet of the liner system flexible membrane liner.
- (4) Once the liner system flexible membrane liner is exposed pursuant to paragraph (D)(3) of this rule, it shall be visually inspected, photographed, and examined by the owner or operator to determine if any puncture or gouge exists.
- (5) If a puncture or gouge is detected pursuant to paragraph (D)(4) of this rule, the owner or operator shall do the following:
 - (a) Patch the liner system flexible membrane liner. Patches are subject to the testing and certification requirements of rule 3745-512-330 of the Administrative Code.
 - (b) Dig, inspect, photograph, and examine additional test pits in accordance with this rule. The number and locations of the additional test pits shall be agreed upon by the owner or operator and the concurring authority. If the owner or operator detects additional punctures or gouges, the concurring authority shall determine the location and extent of liner system flexible membrane liner that shall be replaced.
- (6) The geocomposite drainage layer shall be repaired by the owner or operator by use of sewing, heat bonding, or other method of seaming, and results in complete coverage of the liner system flexible membrane liner.
- (7) After inspection and repair pursuant to paragraphs (D)(4) to (D)(6) of this rule, the owner or operator shall replace tire shreds in the test pit to the depth necessary to conform to this rule and the authorizing documents.

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(E) Certification of the leachate collection system geocomposite drainage layer by the owner or operator shall include the following:

- (1) Record drawings showing the location, including the run-out if applicable, and plan views with topographic representation of the final elevation of the permeable material, as constructed.
- (2) Results of the test pit investigation performed under paragraph (D) of this rule, if applicable.
- (3) Results of all testing and verification that the geocomposite drainage layer and the placement of the permeable material overlying the geocomposite drainage layer meet the standards in paragraphs (A) and (B) 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.
- (4) Measures taken by the owner or operator to prevent clogging of the geocomposite drainage layer in the run-out.