

WAC 173-306-450 Liner and final cap design and construction standards. (1) Applicability. This section applies to owners or operators of facilities that monofill combined or separated special incinerator ash, except as WAC 173-306-400 provides otherwise.

(2) Liner design.

(a) Owners or operators who monofill combined or separated fly ash and bottom ash shall comply with the requirements of Design A, subsection (3) of this section.

(b) Owners or operators who demonstrate ability to maintain the permeability requirements of Design B during an eighteen-month demonstration period may seek approval to use Design B following the demonstration period.

(3) Design A.

(a) General requirements. Owners or operators shall comply with the liner inspection requirements of WAC 173-306-440 (4)(d) and siting and design requirements of WAC 173-306-440 (3) and (4). In addition, owners or operators shall:

(i) Thoroughly compact ash residues. Owners or operators shall compact ash residues thoroughly by using compaction equipment.

(ii) Provide daily cover to prevent fugitive dust emissions and run-on and runoff discharges. Cover material may include high density polyethylene or any department approved equivalent material.

(b) Liner design. The liner must be an engineered liner of the following design from bottom to top:

(i) 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. The foundation slope must be a minimum of two percent;

(ii) Next, a single composite liner consisting of an engineered soil liner at least two feet thick that has permeability of 1×10^{-7} cm/sec or the equivalent upon which a synthetic liner of sixty mils high density polyethylene or other material of equivalent mechanical strength and chemical resistance is placed. Liner slopes must be a minimum of four percent;

(iii) Next, a leachate detection system consisting of a minimum of twelve inches of sand or equivalent material with a permeability greater than or equal to 1×10^{-2} cm/sec with drain pipes;

(iv) Next, a synthetic liner of sixty mils high density polyethylene or other material of equivalent mechanical strength and chemical resistance;

(v) Next, a leachate collection and removal system that consists of a minimum of twelve inches of sand or equivalent material with a permeability greater than or equal to 1×10^{-2} cm/sec with drain pipes; and

(vi) A fabric filter placed between the drainage layer and the first lift of special incinerator ash.

(4) Design B. Owners or operators who monofill combined or separated fly and bottom ash shall comply with these design criteria.

(a) General requirements. Owners or operators shall comply with the liner inspection requirements of WAC 173-306-440 (4)(d) and siting and design requirements of WAC 173-306-440 (3) and (4). In addition, owners or operators shall:

(i) Compact ash residues to a permeability of 1×10^{-5} cm/sec. All ferrous material will be removed using magnetic separation or an equivalent method approved by the department so that the pozzolanic effect of compacted ash will not be impeded.

(ii) Lifts will be tested for ash permeability using guidance established by the department. Lift thickness before compaction may not exceed one foot.

(A) Design B liner design may be used as long as lift permeability tests at 1×10^{-5} cm/sec or less.

(B) If the ash permeability requirement cannot be maintained, the owner or operator shall immediately close the Design B cell according to the closure requirements of WAC 173-306-410 and subsection (5) of this section and resume disposal activities using the Design A liner.

(iii) Provide daily cover to prevent fugitive dust emissions and run-on and runoff discharges. Cover material may include high density polyethylene or any department approved equivalent material.

(b) Liner design. The liner must be an engineered liner of the following design:

(i) 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. Foundation slope must be a minimum of two percent;

(ii) Next, a single composite liner that consists of an engineered soil liner at least two feet thick that has a permeability of 1×10^{-7} cm/sec or the equivalent upon which a synthetic liner of sixty mils high density polyethylene or other material of equivalent mechanical strength and chemical resistance rests. Liner slopes must be a minimum of four percent;

(iii) Next, a leachate collection system that consists of a minimum of twelve inches of sand or equivalent material with a permeability greater than or equal to 1×10^{-2} cm/sec with drain pipes; and

(iv) A fabric filter placed between the drainage layer and the first layer of special incinerator ash.

(5) Final cap design. All owners or operators of special incinerator ash monofills shall comply with the following design requirements.

(a) The final cap shall maintain a surface slope between two and five percent and side slope of no more than thirty-three percent and shall consist, from bottom to top, of:

(i) Two feet of ash, well graded (with ferrous material removed and having proportional size distribution of ash particles) and thoroughly compacted;

(ii) Next, a layer, system, or mechanism capable of detecting cap failure;

(iii) Next, a fabric filter overlaid by at least two feet of clay that has a permeability of 1×10^{-7} cm/sec upon which a synthetic liner of sixty mils high density polyethylene or other material of equivalent mechanical strength and chemical resistance rests; and

(iv) Eighteen inches of native soil covered by six inches of topsoil.

(b) Final cap inspections must be done in accordance with the liner inspection requirements of WAC 173-306-440 (4)(d).

(c) In case of cap failure, immediately notify the department with a plan for remedial action.

[Statutory Authority: Chapter 70.138 RCW. WSR 00-19-018 (Order 00-17), § 173-306-450, filed 9/8/00, effective 10/9/00; WSR 90-10-047, § 173-306-450, filed 4/30/90, effective 5/31/90.]