

**WAC 173-304-460 Landfilling standards.** (1) Applicability. These standards apply to facilities that dispose of solid waste in landfills except for:

(a) Inert wastes and demolition wastes landfills, that must meet WAC 173-304-461 standards; and

(b) Woodwaste landfills that must meet WAC 173-304-462 standards.

(2) Minimum functional standards for performance.

(a) Groundwater. An owner or operator of a landfill shall not contaminate the groundwater underlying the landfill, beyond the point of compliance. Contamination and point of compliance are defined in WAC 173-304-100.

(b) Air quality and toxic air emissions.

(i) An owner or operator of a landfill shall not allow explosive gases generated by the facility whose concentration exceeds:

(A) Twenty-five percent of the lower explosive limit for the gases in facility structures (excluding gas control or recovery system components);

(B) The lower explosive limit for the gases at the property boundary or beyond; and

(C) One hundred parts per million by volume of hydrocarbons (expressed as methane) in offsite structures.

(ii) An owner or operator of a landfill shall not cause a violation of any ambient air quality standard at the property boundary or emission standard from any emission of landfill gases, combustion or any other emission associated with a landfill.

(c) Surface waters. An owner or operator of a landfill shall not cause a violation of any receiving water quality standard or violate chapter 90.48 RCW from discharges of surface runoff, leachate or any other liquid associated with a landfill.

(3) Minimum functional standards for design.

(a) Minimizing liquids. All owners or operators of landfills shall minimize liquids admitted to active areas of landfills by:

(i) Covering according to WAC 173-304-460 (4) (d);

(ii) Prohibiting the disposal of noncontainerized liquids or sludges containing free liquids in landfills unless approved by the jurisdictional health department;

(iii) Designing the landfill to prevent all the run-on of surface waters and other liquids resulting from a maximum flow of a twenty-five year storm into the active area of the landfill;

(iv) Designing the landfill to collect the runoff of surface waters and other liquids resulting from a twenty-four hour, twenty-five year storm from the active area and the closed portions of a landfill;

(b) Leachate systems. All owners or operators of landfills shall:

(i) Install a leachate collection system sized according to water balance calculations or using other accepted engineering methods either of which shall be approved by the jurisdictional health department;

(ii) Install a leachate collection system so as to prevent no more than two feet of leachate developing at the topographical low point of the active area; and

(iii) Install a leachate treatment, or a pretreatment system if necessary in the case of discharge to a municipal waste water treatment plant, to meet the requirements for permitted discharge under chapter 90.48 RCW and the Federal Clean Water Act (PL 95-217).

(c) Liner designs. All owners or operators of landfills shall use liners of one of the following designs:

(i) Standard design. The liner shall be constructed of at least a four feet thick layer of recompact clay or other material with a permeability of no more than  $1 \times 10^{-7}$  cm/sec and sloped no less than two percent; or

(ii) Alternative design. The design shall have two liners:

(A) An upper liner of at least fifty mils thickness made of synthetic material; and

(B) A lower liner of at least two feet thickness of recompact clay or other material with a permeability of no more than  $1 \times 10^{-6}$  cm/sec and sloped no less than two percent; or

(iii) Equivalent design. The design shall use alternative methods, operating practices and locational characteristics which will minimize the migration of solid waste constituents or leachate into the ground or surface water at least as effectively as the liners of (c)(i) and (ii) of this subsection; or

(iv) Arid design. This design will apply to locations having less than twelve inches of precipitation annually, and, in lieu of (c)(i), (ii), and (iii) of this subsection, shall consist of vadose zone moisture monitoring, provided that:

(A) Waste material is no less than ten feet above the seasonal high level of groundwater in the uppermost aquifer; and

(B) Any evidence of leachate or waste constituents detected in the vadose zone that violates or could be expected to violate the performance standard of WAC 173-304-460(2) shall cause the owner or operator to:

(I) Take corrective action, and either

(II) Close the facility according to these rules, or

(III) For all future expansions at that facility, meet the liner requirement of (c)(i) or (ii) of this subsection.

(v) Small landfill designs. For a landfill whose design and permit allow a total capacity at closure of two hundred thousand cubic yards or less, the need for a liner and leachate collection system shall be determined on a case-by-case basis by the jurisdictional health department in consultation with the department.

(d) Flood plains. All owners or operators of landfills that are located in a one hundred-year flood plain shall:

(i) Comply with local flood plain management ordinances and chapter 508-60 WAC, Administration of flood control zones; and

(ii) Design the landfill so that the landfill entrance or exit roads or practices shall not restrict the flow of the base flood, reduce the temporary water storage capacity of the flood plain or result in washout of solid waste, so as to pose a hazard to human life, wildlife, land or water resources.

(e) Closure. All owners and operators shall design landfills so that at closure:

(i) At least two feet of  $1 \times 10^{-6}$  cm/sec or lower permeability soil or equivalent shall be placed upon the final lifts unless the landfill is located in an area having mean annual precipitation of less than twelve inches in which case at least two feet of  $1 \times 10^{-5}$  cm/sec or lower permeability soil or equivalent shall be placed upon the final lifts. Artificial liners may replace soil covers provided that a minimum of fifty mils thickness is used;

(ii) The grade of surface slopes shall not be less than two percent, nor the grade of side slopes more than thirty-three percent; and

(iii) Final cover of at least six inches of topsoil be placed over the soil cover and seeded with grass, other shallow rooted vegetation or other native vegetation.

(f) Gas control.

(i) All owners and operators shall design landfills, having a permitted capacity of greater than ten thousand cubic yards per year, so that methane and other gases are continuously collected, and

(A) Purified for sale;

(B) Flared; or

(C) Utilized for its energy value.

(ii) Collection and handling of landfill gases shall not be required if it can be shown that little or no landfill gases will be produced or that landfill gases will not support combustion; in such cases installation of vents shall be required.

(g) Other requirements. All owners and operators of landfills shall design landfills to:

(i) Be fenced at the property boundary or use other means to impede entry by the public and animals. A locale gate shall be required at the entry to the landfill;

(ii) Monitor groundwater according to WAC 173-304-490 using a design approved by the local jurisdictional health department with the guidance of the department. The jurisdictional health department may also require monitoring of:

(A) Surface waters, including runoff;

(B) Leachate;

(C) Subsurface landfill gas movement and ambient air; and

(D) Noise.

(iii) Weigh all incoming waste on scales for landfills having a permitted capacity of greater than ten thousand cubic yards per year or provide an equivalent method of measuring waste tonnage capable of estimating total annual solid waste tonnage to within plus or minus five percent;

(iv) Provide for employee facilities including shelter, toilets, hand washing facilities and potable drinking water for landfills having the equivalent of three or more full-time employees;

(v) Erect a sign at the site entrance that identifies at least the name of site, if applicable, the hours during which the site is open for public use, unacceptable materials and an emergency telephone number. Other pertinent information may be required by the jurisdictional health department;

(vi) Provide on-site fire protection as determined by the local and state fire control jurisdiction;

(vii) Prevent potential rat and other vectors (such as insects, birds, and burrowing animals) harborage in buildings, facilities, and active areas;

(viii) Provide the unloading area(s) to be as small as possible, consistent with good traffic patterns and safe operation;

(ix) Provide approach and exit roads to be of all-weather construction, with traffic separation and traffic control on-site, and at the site entrance; and

(x) Provide communication between employees working at the landfill and management offices on-site and offsite (such as telephones) to handle emergencies.

(4) Minimum functional standards for maintenance and operation.

(a) Operating plans. All owners or operators of landfills shall maintain and operate the facility so as to conform to the approved plan of operation.

(b) Operating details. All owners or operators of landfills shall operate the facility so as to:

(i) Control road dust;

(ii) Perform no open burning unless permitted by the jurisdictional air pollution control agency or the department under the Washington Clean Air Act, chapter 70.94 RCW. Garbage shall not be open burned.

(iii) Collect scattered litter as necessary to avoid a fire hazard or an aesthetic nuisance;

(iv) Prohibit scavenging;

(v) Conduct on-site reclamation in an orderly sanitary manner, and in a way that does not interfere with the disposal site operation;

(vi) Insure that at least two landfill personnel are on-site with one person at the active face when the site is open to the public for landfills with a permitted capacity of greater than fifty thousand cubic yards per year;

(vii) Control insects, rodents and other vectors; and

(viii) Insure that reserve operational equipment shall be available to maintain and meet these standards.

(c) Boundary posts. All owners or operators of landfills shall clearly mark the active area boundaries authorized in the permit, with permanent posts or using equivalent method clearly visible for inspection purposes.

(d) Compaction and daily cover. All owners or operators of landfills shall:

(i) Thoroughly compact the solid waste before succeeding layers are added; and

(ii) Cover compacted waste containing garbage fully with at least six inches of compacted cover material after each day of operation. The jurisdictional health department may allow less frequent covering by considering:

(A) The characteristics of the solid waste;

(B) The climatic and geologic setting;

(C) The size of the facility; and

(D) The potential for nuisance conditions.

(e) Monitoring systems. All owners and operators of landfills shall maintain the monitoring system required in subsection (3)(g)(ii) of this section.

(f) Recycling required.

(i) All owners or operators of landfills at which the general public delivers household solid waste shall provide the opportunity for the general public to recycle cans, bottles, paper and other material for which a market exists and brought to the landfill site:

(A) During the normal hours of operation;

(B) In facilities convenient to the public (i.e., near entrance to the gate).

(ii) Owners or operators may demonstrate alternative means to providing an opportunity to the general public to recycle household solid waste.

(g) Disposal of dangerous waste prohibited. Owners or operators of landfills shall not knowingly dispose, treat, store, or otherwise handle dangerous waste unless the requirements of the dangerous waste regulation, chapter 173-303 WAC are met.

(5) Limited purpose landfill standards.

(a) Limited purpose landfills shall meet the following requirements:

(i) The general facility standards of WAC 173-304-405;

(ii) The general closure and post-closure standards of WAC 173-304-407;

(iii) The performance standards of WAC 173-304-460(2);

(iv) The financial assurance standards of WAC 173-304-467 and 173-304-468; and

(v) The groundwater monitoring standards of WAC 173-304-490.

(b) In addition, limited purpose landfills must meet all other standards of WAC 173-304-130 and 173-304-460 unless the owner or operator applies for relief from each of these requirements as part of his permit application and includes evidence or reasons why the nature of the waste, the disposal site and other factors can protect the environment and the public health.

[Statutory Authority: RCW 70.95.215. WSR 88-20-066 (Order 88-28), § 173-304-460, filed 10/4/88. Statutory Authority: Chapter 43.21A RCW. WSR 85-22-013 (Order 85-18), § 173-304-460, filed 10/28/85.]