

WAC 173-351-300 Design criteria. (1) Applicability. New MSWLF units and lateral expansions must be constructed in accordance with the requirements under subsection (2) of this section. Existing MSWLF units are not subject to this section. Waste placement in existing units must be consistent with past operating practices or modified practices to ensure good management, including operating plans approved under chapter 173-304 WAC.

(2) New MSWLF units and lateral expansions must be constructed:

(a) With a composite liner as defined in subsection (3) of this section and a leachate collection system that is designed and constructed to maintain less than a 1 foot (30 cm) depth of leachate over the liner and less than a 2-foot depth over the leachate pump sump area; or

(b) In accordance with an alternative design approved by the jurisdictional health department with the department's written consent. Alternative designs must ensure that the concentration values listed in Table 1 of this section and the criteria in the water quality standards for groundwaters of the state of Washington, chapter 173-200 WAC, will not be exceeded in the hydrostratigraphic unit(s) identified in the hydrogeologic characterization/report at the relevant point of compliance as specified during the permitting process in WAC 173-351-700 or through the permit modification process of WAC 173-351-720(6). Alternative designs must also sufficiently control methane to meet the criteria in WAC 173-351-200 (4) (a).

(3) For the purpose of this section, "composite liner" means a system consisting of two components; the upper component must consist of a minimum of 60 mil thickness high density polyethylene (HDPE) geomembrane. The lower component must consist of at least a two-foot (60 cm) layer of compacted soil with a hydraulic conductivity of no more than 1×10^{-7} cm/sec. The geomembrane must be installed in direct and uniform contact with the compacted soil component. Thinner geomembranes of other than high density polyethylene may be used provided that a demonstration can be made that the alternative has equivalent mechanical strength, permeability, chemical resistance and other factors under conditions of construction and use. Minimum thickness of geomembranes other than high density polyethylene must be 30 mils.

(4) When demonstrating that a proposed alternative design meets the standards of this section, the owner or operator may use:

(a) Existing information such as vadose zone, groundwater monitoring, or leachate characterization that has previously been conducted at the facility;

(b) Contaminant transport modeling in accordance with the requirements of WAC 173-351-480; and/or

(c) Other information determined as appropriate and relevant by the jurisdictional health department.

(5) When approving an alternative design, the jurisdictional health department must consider at least the following factors:

(a) The hydrogeologic characteristics of the facility and surrounding land;

(b) The climatic factors of the area; and

(c) The volume, physical and chemical characteristics of the leachate.

(6) The relevant point of compliance approved during the permitting process in WAC 173-351-700 or through the permit modification process of WAC 173-351-720(6), must be no more than one hundred fifty meters (four hundred ninety-two feet) from the waste management unit

boundary and must be located on land owned by the owner of the MSWLF unit. In approving the relevant point of compliance the jurisdictional health department must consider at least the following factors:

(a) The hydrogeologic characteristics of the facility and surrounding land;

(b) The volume, and physical/chemical characteristics of the leachate;

(c) The quantity and quality, and direction of flow of groundwater;

(d) The proximity and withdrawal rate of the groundwater users;

(e) The availability of alternative drinking water supplies;

(f) The existing quality of the groundwater, including other sources of contamination and their cumulative impacts on the groundwater, and whether the groundwater is currently used or reasonably expected to be used for drinking water;

(g) Public health, safety, and welfare effects; and

(h) Practical capability of the owner or operator.

(7) Liner separation from groundwater. New MSWLF units and lateral expansions may not be designed such that the bottom of the lowest liner component is any less than ten feet (three meters) above the seasonal high level of groundwater, unless a demonstration can be made during the permit process of WAC 173-351-700 or through the permit modification process of WAC 173-351-720(6) that a hydraulic gradient control system, or the equivalent, can be installed which prevents the controlled seasonal high level of groundwater in the identified water-bearing unit from contacting the bottom of the lowest liner component. For the purposes of this section, groundwater includes any water-bearing unit that is horizontally and vertically extensive, hydraulically recharged and volumetrically significant as to harm or endanger the integrity of the liner at any time. The owner or operator must place the demonstration in the application for a permit under WAC 173-351-700 or through the permit modification process of WAC 173-351-720(6). This demonstration must include:

(a) A hydrogeologic report required in WAC 173-351-490 including a discussion showing the effects from subsoil settlement, changes in surrounding land uses affecting groundwater levels, liner leakage or other impacts will not bring any hydrostratigraphic unit in contact with the bottom of the lowest liner during the active life, closure, post-closure, and upon completion of post-closure care of the MSWLF unit;

(b) Any available ground/surface water quality data for aquifers, springs, or streams in direct hydrologic contact with landfill's active area;

(c) A showing that any gradient-control discharges to groundwater will not adversely impact existing groundwater/surface water users or the instream flow of surface waters in direct hydrologic contact or continuity with the landfill's hydraulic gradient control system;

(d) Conceptual engineering drawings of the proposed MSWLF unit and discussion as to how the hydraulic gradient control system will not affect the structural integrity nor performance of the liner during the active life, closure, post-closure, and upon completion of post-closure care of the MSWLF unit;

(e) Design specifications for the proposed ground and surface water monitoring systems;

(f) A discussion of the potential impacts from the gradient control system on the capability of collecting groundwater samples that

represent the quality of groundwater passing the relevant point of compliance; and
 (g) Preliminary engineering drawings of the hydraulic gradient control system.

TABLE 1

CHEMICAL	Maximum Concentration (mg/l)
ARSENIC	0.00005
BARIUM	1.0
BENZENE	0.001
CADMIUM	0.005
CARBON TETRACHLORIDE	0.0003
CHROMIUM (HEXAVALENT)	0.05
2,4-DICHLOROPHENOXY ACETIC ACID	0.07
1,4-DICHLOROBENZENE	0.004
1,2-DICHLOROETHANE	0.0005
1,1 DICHLOROETHYLENE	0.007
ENDRIN	0.0002
FLUORIDE	4
LINDANE	0.00006
LEAD	0.015
MERCURY	0.002
METHOXYCHLOR	0.04
NITRATE	10
SELENIUM	0.01
SILVER	0.05
TOXAPHENE	0.00008
1,1,1-TRICHLOROETHANE	0.20
TRICHLOROETHYLENE	0.003
2,4,5-TRICHLOROPHENOXY ACETIC ACID	0.01
VINYL CHLORIDE	0.00002

[Statutory Authority: RCW 70.95.020(3), 70.95.060(1), and 70.95.260(1), (6). WSR 12-23-009 (Order 07-15), § 173-351-300, filed 11/8/12, effective 12/9/12. Statutory Authority: Chapter 70.95 RCW and 40 C.F.R. 258. WSR 93-22-016, § 173-351-300, filed 10/26/93, effective 11/26/93.]