

Government Reference

Regulation Title: Title 27 of the California Code Regulations, Sections 20340, 20365, 20790

Summary: Regulations promulgated by the State Water Resources Control Board establish the design criteria for municipal solid waste landfills as it relates to generation of landfill liquids such as leachate and groundwater collected through subdrain and extraction systems. Leachate collection and removal systems are required to collect landfill liquids to divert liquids away from the landfill in holding tanks that can be properly managed such as through reuse onsite, onsite treatment, or offsite disposal. Liquids are contained to prevent exposure to the environment and possible erosion to the landfill which could lead to structural instability and exposure of buried refuse. Section 20790 by CalRecycle requires leachate to be maintained to prevent human contact and possible exposure.

Section 20340. SWRCB - Leachate Collection and Removal Systems (LCRS). [C15: S2543 // T14: S17781(b)(2) & (d)(1)]

- (a) Basic LCRS Design -Leachate collection and removal systems (LCRS) are required for Class II landfills and surface impoundments, and for Class III landfills which have a liner or which accept sewage or water treatment sludge. The LCRS shall be installed directly above underlying containment features for landfills and waste piles, and installed between the liners for surface impoundments. LCRS requirements are summarized on Table 4.1. Class II landfills and waste piles which contain only dry wastes (not including nonhazardous solid waste and decomposable waste) may be allowed to operate without an LCRS if the discharger demonstrates, based on climatic and hydrogeologic conditions, that leachate will not be formed in, or migrate from, the Unit; nevertheless, for a Class II or Class III MSW landfill, after the Federal Deadline for installing liners at that Unit, the LCRS requirements of SWRCB Resolution No. 93-62 apply to all portions outside of the Unit's Existing Footprint.

- (b) Placement -Except as otherwise provided in ¶(e or f), where an LCRS is used, it shall be installed immediately above the liner (except in the case of a surface impoundment), and between the inner and outer liner of a double-liner system, and shall be designed, constructed, maintained, and operated to collect and remove twice the maximum anticipated daily volume of leachate from the Unit.

- (c) Head Buildup -The RWQCB shall specify design and operating conditions in WDRs to ensure that there is no buildup of hydraulic head on the liner. The depth of fluid in the collection sump shall be kept at the minimum needed to ensure efficient pump operation.

- (d) Clogging -LCRSs shall be designed and operated to function without clogging through the scheduled closure of the Unit and during the post-closure maintenance period. The systems shall be tested at least annually to demonstrate proper operation. The results of the tests shall be compared with earlier tests made under comparable conditions.

(e) Standard LCRS -LCRSs shall consist of a permeable subdrain layer which covers the bottom of the Unit and extends as far up the sides as possible, (i.e., blanket-type) except as provided in ¶(f). The LCRS shall be of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying wastes, waste cover materials, and by any equipment used at the Unit.

(f) Alternative LCRS -Except as otherwise required for MSW landfills, under SWRCB Resolution No. 93-62, if a Class III landfill is required to have an artificial liner and receives only permeable waste that allows free drainage of percolating fluid, the RWQCB can allow the use of a dendritic LCRS which underlies less than 100 percent of the waste; in this type of LCRS system, only wastes which have an hydraulic conductivity which approximates that of subdrain material, and which will remain permeable throughout the active life and post-closure maintenance period of the landfill, shall be placed adjacent to the liner. Furthermore, to prevent ponding, when using this type of LCRS, all portions of the liner not overlain by a portion of the subdrain system shall be sloped towards the subdrain so that ponding is minimized and leachate is removed as quickly as possible from the base of the landfill.

(g) Leachate Handling -Except as otherwise provided under SWRCB Resolution No. 93-62 (for MSW landfills subject to 40CFR258.28), collected leachate shall be returned to the Unit(s) from which it came or discharged in another manner approved by the RWQCB. Collected leachate can be discharged to a different Unit only if:

(1) the receiving Unit has an LCRS, contains wastes which are similar in classification and characteristics to those in the Unit(s) from which leachate was extracted, and has at least the same classification (under Article 3 of this subchapter) as the Unit(s) from which leachate was extracted;

(2) the discharge to a different Unit is approved by the RWQCB;

(3) the discharge of leachate to a different Unit shall not exceed the moisture-holding capacity of the receiving unit, and shall comply with s20200(d).

(h) Leachate Production Rate -After July 18, 1997, for a landfill equipped with an LCRS, the discharger shall note, as a part of each regularly scheduled monitoring report [under Article 1, Subchapter 3, Chapter 3 of this division (s20380 et seq.)], the total volume of leachate collected each month since the previous monitoring report.

Section 20365. SWRCB - Precipitation and Drainage Controls. [C15: S2546 // T14: S17778(e), (f)(1), (g), & (j)]

- (a) General -Units and their respective containment structures shall be designed and constructed to limit, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtopping under the precipitation conditions specified in Table 4.1 (of this article) for each class of waste management unit (Unit). [Note: see also s21090(b)(1).]

(b) Undiverted Precipitation -Precipitation on landfills or waste piles which is not diverted by covers or drainage control systems shall be collected and managed through the leachate collection and removal system, which shall be designed and constructed to accommodate precipitation conditions specified in Table 4.1 of this article or each class Unit.

(c) Performance Standards -Diversion and drainage facilities shall be designed, constructed, and maintained:

(1) to accommodate the anticipated volume of precipitation and peak flows from surface runoff under the precipitation conditions specified in Table 4.1 of this article for each class of Unit;

(2) to effectively divert sheet flow runoff laterally, or via the shortest distance, into the drainage and collection facilities;

(3) to prevent surface erosion through the judicious use of:

(A) energy dissipators where required to decrease the velocity of runoff; and

(B) slope protection and other erosion control measures;

(4) to control and intercept run-on, in order to isolate uncontaminated surface waters from water that might have come into contact with waste;

(5) to take into account:

(A) for closed Units and for closed portions of Units, the expected final contours of the closed Unit, including its planned drainage pattern;

(B) for operating portions of Units other than surface impoundments, the Unit's drainage pattern at any given time;

(C) the possible effects of the Unit's drainage pattern on and by the regional watershed;

(D) the design capacity of drainage systems of downstream and adjacent properties by providing for the gradual release of retained water downstream in a manner which does not exceed the expected peak flow rate at the point of discharge if there were no waste management facility; and

(6) to preserve the system's function. Therefore, the discharger shall periodically remove accumulated sediment from the sedimentation or detention basins as needed to preserve the design capacity of the system.

(d) Maintain Capacity -Collection and holding facilities associated with precipitation and drainage control systems shall be emptied immediately following each storm or otherwise managed to maintain the design capacity of the system.

(e) Divert Drainage -Surface and subsurface drainage from outside of a Unit shall be diverted from the Unit.

(f) Resist Erosion from Design Storm -Cover materials shall be graded to divert precipitation from the Unit, to prevent ponding of surface water over wastes, and to resist erosion as a result of precipitation with the return frequency specified in Table 4.1 (of this article) for each class of Unit, unless, for a landfill, the CIWMB/EA requires (for protection of public health and safety) that the design be capable of resisting erosion resulting from a longer return interval storm [see s21150(b)]. Any drainage layer in the final cover shall be designed and constructed to intersect with the final drainage system for the Unit in a manner promoting free drainage from all portions of the drainage lay

Section 20790. CIWMB - Leachate Control. (T14:S17704,17709)

- The operator shall ensure that leachate is controlled to prevent contact with the public.