7045.0638 LANDFILLS.

Subpart 1. **Scope.** This part applies to owners and operators of facilities that dispose of hazardous waste in landfills, except as part 7045.0552 provides otherwise. A waste pile used as a disposal facility is a landfill and is governed by this part.

Subp. 1a. [Repealed, 18 SR 1886]

Subp. 2. **Design and operating requirements.** Design and operating requirements are as follows:

A. The owner or operator of each new landfill unit on which construction commences after January 29, 1992, each lateral expansion of a landfill unit on which construction commences after July 29, 1992, and each replacement of an existing landfill unit that is to commence reuse after July 29, 1992, must install two or more liners and a leachate collection and removal system above and between such liners, and operate the leachate collection and removal systems, in accordance with part 7045.0538, subpart 3, item C, unless exempted under part 7045.0538, subpart 3, item M or N. "Construction commences" and "existing facility" are defined in part 7045.0020.

B. The owner or operator of each unit referred to in item A must notify the commissioner at least 60 days before receiving waste. The owner or operator of each facility submitting notice must file a part B application within six months of the commissioner's receipt of the notice.

C. The owner or operator of any replacement landfill unit is exempt from item A if:

(1) the existing unit was constructed in compliance with the design standards of the United States Resource Conservation and Recovery Act, section 3004(o)(1)(A)(i) and (o)(5); and

(2) there is no reason to believe that the liner is not functioning as designed.

D. The owner or operator shall design, construct, operate, and maintain a run-on control system capable of preventing flow onto the active portion of the landfill during peak discharge from at least a 25-year storm.

E. The owner or operator shall design, construct, operate, and maintain a runoff management system to collect and control at least the water volume resulting from a 24-hour, 25-year storm.

F. Collecting and holding facilities, such as tanks or basins, associated with run-on and runoff control systems must be emptied or otherwise managed expeditiously after storms to maintain design capacity of the system.

G. The owner or operator of a landfill containing hazardous waste which is subject to dispersal by wind shall cover or otherwise manage the landfill so that wind dispersal of the hazardous waste is controlled. As required by part 7045.0564, the waste analysis plan must include analyses needed to comply with subparts 5, 6, and 7. As required by part 7045.0584, the owner or operator shall place the results of these analyses in the operating record of the facility.

Subp. 2a. **Action leakage rate.**

A. The owner or operator of landfill units subject to subpart 2, item A, must submit a proposed action leakage rate to the commissioner when submitting the notice required under subpart 2, item B. Within 60 days of receipt of the notification, the commissioner will establish an action leakage rate, either as proposed by the owner or operator or modified using the criteria in this subpart, or extend the review period for up to 30 days. If no action is taken by the commissioner before the original 60-day or extended 90-day review periods, the action leakage rate will be approved as proposed by the owner or operator.

B. The commissioner shall approve an action leakage rate for landfill units subject to subpart 2, item A. The action leakage rate is the maximum design flow rate that the leak detection system can remove without the fluid head on the bottom liner exceeding one foot. The action leakage rate must include an adequate safety margin to allow for uncertainties in the design (e.g., slope, hydraulic conductivity, thickness of drainage material), construction, operation, and location of the leak detection system, waste and leachate characteristics, likelihood and amounts of other sources of liquids in the leak detection system, and proposed response actions (e.g., the action leakage rate must consider decreases in the flow capacity of the system over time resulting from siltation and clogging, rib layover and creep of synthetic components of the system, overburden pressures, etc.).

C. To determine if the action leakage rate has been exceeded, the owner or operator must convert the weekly or monthly flow rate from the monitoring data obtained under subpart 2c to an average daily flow rate (gallons per acre per day) for each sump. Unless the commissioner approves a different calculation, the average daily flow rate for each sump must be calculated weekly during the active life and closure period, and monthly during the postclosure care period when monthly monitoring is required under subpart 2c, item B.

Subp. 2b. **Response actions.**

A. The owner or operator of landfill units subject to subpart 2, item A, must submit a response action plan to the commissioner when submitting the proposed action leakage rate under subpart 2a. The response action plan must set forth the actions to be

taken if the action leakage rate has been exceeded. At a minimum, the response action plan must describe the actions specified in item B.

B. If the flow rate into the leak detection system exceeds the action leakage rate for any sump, the owner or operator must:

(1) notify the commissioner in writing of the exceedence within seven days of the determination;

(2) submit a preliminary written assessment to the commissioner within 14 days of the determination, as to the amount of liquids, likely sources of liquids, possible location, size, and cause of any leaks, and short-term actions taken and planned;

(3) determine to the extent practicable the location, size, and cause of any leak;

(4) determine whether waste receipt should cease or be curtailed, whether any waste should be removed from the unit for inspection, repairs, or controls, and whether or not the unit should be closed;

(5) determine any other short-term and longer-term actions to be taken to mitigate or stop any leaks; and

(6) within 30 days after the notification that the action leakage rate has been exceeded, submit to the commissioner the results of the analyses specified in subitems (3) to (5), the results of actions taken, and actions planned. Monthly thereafter, as long as the flow rate in the leak detection system exceeds the action leakage rate, the owner or operator must submit to the commissioner a report summarizing the results of any remedial actions taken and actions planned.

C. To make the leak and/or remediation determinations in item B, subitems (3) to (5), the owner or operator must:

(1) (a) assess the source of liquids and amounts of liquids by source;

(b) conduct a fingerprint, hazardous constituent, or other analyses of the liquids in the leak detection system to identify the source of liquids and possible location of any leaks, and the hazard and mobility of the liquid; and

(c) assess the seriousness of any leaks in terms of potential for escaping into the environment; or

(2) document why such assessments are not needed.

Subp. 2c. **Monitoring and inspection.**

A. An owner or operator required to have a leak detection system under subpart 2, item A, must record the amount of liquids removed from each leak detection system sump at least once each week during the active life and closure period.

B. After the final cover is installed, the amount of liquids removed from each leak detection system sump must be recorded at least monthly. If the liquid level in the sump stays below the pump operating level for two consecutive months, the amount of liquids in the sumps must be recorded at least quarterly. If the liquid level in the sump stays below the pump operating level for two consecutive quarters, the amount of liquids in the sumps must be recorded at least semiannually. If at any time during the postclosure care period the pump operating level is exceeded at units on quarterly or semiannual recording schedules, the owner or operator must return to monthly recording of amounts of liquids removed from each sump until the liquid level again stays below the pump operating level for two consecutive months.

C. "Pump operating level" is a liquid level proposed by the owner or operator and approved by the commissioner based on pump activation level, sump dimensions, and level that avoids backup into the drainage layer and minimizes head in the sump. The timing for submission and approval of the proposed pump operating level will be in accordance with subpart 2a, item A.

Subp. 3. **Surveying and record keeping.** The owner or operator of a landfill shall maintain the following items in the operating record required in part 7045.0584:

A. a map detailing the exact location and dimensions, including depth, of each cell with respect to permanently surveyed bench marks; and

B. the contents of each cell and the approximate location of each hazardous waste type within each cell.

Subp. 4. **Closure and postclosure.** Closure and postclosure requirements are as follows:

A. At final closure of the landfill or upon closure of any landfill cell, the owner or operator shall cover the landfill or landfill cell with a final cover designed and constructed to:

(1) provide long-term minimization of migration of liquids through the closed landfill;

(2) function with minimum maintenance;

(3) promote drainage and minimize erosion or abrasion of the cover;

(4) accommodate settling and subsidence so that the cover's integrity is maintained; and

(5) have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present.

B. After final closure, the owner or operator shall comply with all postclosure requirements contained in parts 7045.0600 to 7045.0606 including maintenance and monitoring throughout the postclosure care period. The owner or operator must:

(1) maintain the integrity and effectiveness of the final cover, including making repairs to the cover as necessary to correct the effect of settling, subsidence, erosion, or other events;

(2) maintain and monitor the leak detection system in accordance with part 7045.0538, subparts 3, item C, subitems (3), unit (d), and (4); and 2c, item B, and comply with all other applicable leak detection system requirements of parts 7045.0552 to 7045.0649 governing interim status facility standards;

(3) maintain and monitor the groundwater monitoring system and comply with all other applicable requirements of parts 7045.0590 and 7045.0592;

(4) prevent run-on and runoff from eroding or otherwise damaging the final cover; and

(5) protect and maintain surveyed bench marks used in complying with part 7045.0638, subpart 3.

Subp. 5. **Special requirements for ignitable or reactive waste.** Special requirements for ignitable or reactive waste are as follows:

A. Except as provided in item B, and subparts 7 and 9, ignitable or reactive waste must not be placed in a landfill unless the waste and landfill meet all applicable requirements of part 7045.1390, and the resulting waste, mixture, or dissolution of material no longer meets the definition of ignitable or reactive waste under part 7045.0131, subpart 2 or 5, and compliance with part 7045.0562, subpart 2, is maintained.

B. Except for prohibited wastes which remain subject to treatment standards in Code of Federal Regulations, title 40, sections 268.40 to 268.42, as incorporated in part 7045.1390, ignitable wastes in containers may be landfilled without meeting the requirements of item A if the wastes are disposed so that they are protected from any material or conditions which may cause them to ignite. Ignitable wastes must be disposed in nonleaking containers which are carefully handled and placed so as to avoid heat, sparks, rupture, or any other condition that might cause ignition of the wastes; must be covered daily with soil or other noncombustible material to minimize the potential for ignition of the wastes; and must not be disposed in cells that contain or will contain other wastes which may generate heat sufficient to cause ignition of the wastes.

Subp. 6. **Special requirements for incompatible wastes.** Incompatible wastes, or incompatible wastes and materials must not be placed in the same landfill cell unless part 7045.0562, subpart 2, is complied with.

Subp. 7. **Special requirements for liquid waste.** Bulk or noncontainerized liquid waste or waste containing free liquids, whether or not sorbents have been added, must not be placed in a landfill.

A. A container holding liquid waste or waste containing free liquids must not be placed in a landfill, unless:

(1) all free standing liquid has been removed by decanting, or other methods; has been mixed with sorbent or solidified so that free standing liquid is no longer observed; or has been otherwise eliminated;

(2) the container is a laboratory pack as defined in subpart 9 and is disposed of in accordance with subpart 9;

(3) the container is designed to hold liquids or free liquids for a use other than storage, such as a battery or capacitor; or

(4) the container is very small, such as an ampule.

B. To demonstrate the absence or presence of free liquids in either a containerized or a bulk waste, the following test must be used: Method 9095 (Paint Filter Liquids Test) as described in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA publication SW-846, incorporated in part 7045.0065, item D.

C. Sorbents used to treat free liquids to be disposed of in landfills must be nonbiodegradable. Nonbiodegradable sorbents are materials listed or described in subitem (1) or materials that pass one of the tests in subitem (2).

(1) Nonbiodegradable sorbents:

(a) inorganic minerals, other inorganic materials, and elemental carbon (for example, aluminosilicates, clays, smectites, Fuller's earth, bentonite, calcium bentonite, montmorillonite, calcined montmorillonite, kaolinite, micas (illite), vermiculites, and zeolites; calcium carbonate (organic free limestone); oxides/hydroxides, alumina, lime, silica (sand), and diatomaceous earth; perlite (volcanic glass); expanded volcanic rock; volcanic ash; cement kiln dust; fly ash; rice hull ash; and activated charcoal/activated carbon);

(b) high molecular weight synthetic polymers (for example, polyethylene, high density polyethylene (HDPE), polypropylene, polystyrene, polyurethane, polyacrylate, polynorborene, polyisobutylene, ground synthetic rubber, cross-linked allylstyrene and tertiary butyl copolymers). This does not include polymers derived from biological material or polymers specifically designed to be degradable; or

(c) mixtures of these nonbiodegradable materials.

(2) Tests for nonbiodegradable sorbents must use the following methods. The methods are incorporated by reference under part 7045.0538, subpart 10, item D, subitem (2):

(a) the sorbent material is determined to be nonbiodegradable under ASTM Method G21-70 (1984a), Standard Practice for Determining Resistance of Synthetic Polymer Material to Fungi;

(b) the sorbent material is determined to be nonbiodegradable under ASTM Method G22-76 (1984b), Standard Practice for Determining Resistance of Plastics to Bacteria; or

(c) the sorbent material is determined to be nonbiodegradable under OECD test 301B: [CO_2 Evolution (Modified Sturm Test)].

Subp. 8. **Special requirements for containers.** Unless they are very small, such as an ampule, containers must be either:

A. at least 90 percent full when placed in the landfill; or

B. crushed, shredded, or similarly reduced in volume to the maximum practical extent before burial in the landfill.

Subp. 9. **Special requirements for disposal of laboratory packs.** Small containers of hazardous waste in overpacked drums, or laboratory packs, may be placed in a landfill if the requirements of items A to F are met:

A. Hazardous waste must be packaged in nonleaking inside containers. The inside containers must be of a design and constructed of a material that will not react dangerously with, be decomposed by, or be ignited by the waste held therein. Inside containers must be tightly and securely sealed. The inside containers must be of the size and type authorized in the United States Department of Transportation hazardous materials regulations under Code of Federal Regulations, title 49, parts 173, 178, 179, and 180, as amended, if those regulations specify a particular inside container for the waste.

B. The inside containers must be overpacked in a removable head metal shipping container as specified in United States Department of Transportation regulations under Code of Federal Regulations, title 49, section 173.12 and parts 178, 179, and 180, as amended. The inside containers must be surrounded by a sufficient quantity of chemically compatible sorbent material, determined to be nonbiodegradable in accordance with subpart 7, item C, to completely sorb all of the liquid contents of the inside containers. The gross weight of the complete package must not exceed 205 kilograms (452 pounds). The metal outer container must be full after it has been packed with inside containers and sorbent material.

C. The sorbent material used must not be capable of reacting dangerously with, being decomposed by, or being ignited by the contents of the inside containers, in accordance with part 7045.0562, subpart 2.

D. Incompatible wastes, as defined in part 7045.0020, must not be placed in the same outside container.

E. Reactive waste, other than cyanide- or sulfide-bearing waste as defined in part 7045.0131, subpart 5, item E, must be treated or rendered nonreactive prior to packaging in accordance with items A to D. Cyanide- and sulfide-bearing reactive waste may be packaged in accordance with items A to D without first being treated or rendered nonreactive.

F. The disposal complies with part 7045.1390. Persons who incinerate lab packs in accordance with Code of Federal Regulations, title 40, section 268.42(c)(1), as incorporated in part 7045.1390, may use fiber drums in place of metal outer containers. The fiber drums must meet the United States Department of Transportation specifications in Code of Federal Regulation, title 49, section 173.12, as amended, and be overpacked in accordance with item B.

Statutory Authority: *MS s 116.07; 116.37*

History: *9 SR 115; 10 SR 1688; 11 SR 1832; 15 SR 1877; 16 SR 2239; 18 SR 1886; 20 SR 715; 33 SR 2042*

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