CA

66264.251 Design and Operating Requirements

(a)

A waste pile (except for an existing portion of a waste pile) shall have: (1) a liner that is designed, constructed, and installed to prevent any migration of wastes out of the pile into the adjacent subsurface soil or ground water or surface water at any time during the active life (including the closure period) of the waste pile. The liner may be constructed of materials that may allow waste to migrate into the liner itself (but not into the adjacent subsurface soil or ground water or surface water) during the active life of the facility. The liner shall be: (A) constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrogeologic forces), physical contact with the waste or leachate to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation; (B) placed upon 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; and (C) installed to cover all surrounding earth likely to be in contact with the waste or leachate; and (2) a leachate collection and removal system immediately above the liner that is designed, constructed, maintained, and operated to collect and remove leachate from the pile. The Department shall specify design and operating conditions in the permit to ensure that the leachate

depth over the liner does not exceed 30 cm (one foot). The leachate collection and removal system shall be:(A) constructed of materials that are: 1. chemically resistant to the waste managed in the pile and the leachate expected to be generated; and 2. of sufficient strength and thickness to prevent collapse under the pressures exerted by overlaying wastes, waste cover materials, and by any equipment used at the pile; and (B) designed and operated to function without clogging through the scheduled closure of the waste pile.

(1)

a liner that is designed, constructed, and installed to prevent any migration of wastes out of the pile into the adjacent subsurface soil or ground water or surface water at any time during the active life (including the closure period) of the waste pile. The liner may be constructed of materials that may allow waste to migrate into the liner itself (but not into the adjacent subsurface soil or ground water or surface water) during the active life of the facility. The liner shall be: (A) constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrogeologic forces), physical contact with the waste or leachate to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation; (B) placed upon 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; and (C) installed to cover all surrounding earth likely to be in contact with the waste or leachate; and

(A)

constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrogeologic forces), physical contact with the waste or leachate to which they are

exposed, climatic conditions, the stress of installation, and the stress of daily operation;

(B)

placed upon 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; and

(C)

installed to cover all surrounding earth likely to be in contact with the waste or leachate; and

(2)

a leachate collection and removal system immediately above the liner that is designed, constructed, maintained, and operated to collect and remove leachate from the pile. The Department shall specify design and operating conditions in the permit to ensure that the leachate depth over the liner does not exceed 30 cm (one foot). The leachate collection and removal system shall be:(A) constructed of materials that are: 1. chemically resistant to the waste managed in the pile and the leachate expected to be generated; and 2. of sufficient strength and thickness to prevent collapse under the pressures exerted by overlaying wastes, waste cover materials, and by any equipment used at the pile; and (B) designed and operated to function without clogging through the scheduled closure of the waste pile.

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1.

chemically resistant to the waste managed in the pile and the leachate expected to be generated; and

2.

of sufficient strength and thickness to prevent collapse under the pressures exerted by overlaying wastes, waste cover materials, and by any equipment used at the pile; and

(B)

designed and operated to function without clogging through the scheduled closure of the waste pile.

(b)

If the liner is constructed of material that allows waste to migrate into the liner, it shall be designed and constructed in accordance with provisions of section 66264.221(d).

(c)

The owner or operator of each new waste pile unit on which construction commences after January 29, 1992, each lateral expansion of a waste pile unit on which construction commences after July 29, 1992, and each replacement of an existing waste pile unit that is to commence reuse after July 29, 1992 shall install two or more liners and a leachate collection and removal system above and between such liners. The requirements of this subsection shall not apply to waste pile units receiving only non-RCRA hazardous waste until February 18, 1996. "Construction commences" is as defined in section 66260.10 under "existing facility". (1) (A) The liner system shall include: 1. A top liner designed and constructed of materials (e.g., a geomembrane) to prevent the migration of hazardous constituents into such liner during the active life and post-closure care period; and 2. A composite bottom liner, consisting of at least two components. The upper component shall be designed and constructed of materials (e.g., a geomembrane) to prevent the migration of hazardous constituents into this component during the active life and post-closure care period. The lower

component shall be designed and constructed of materials to minimize the migration of hazardous constituents if a breach in the upper component were to occur. The lower component shall be constructed of at least 3 feet (91 cm) of compacted soil material with a hydraulic conductivity of no more than 1x10-7 cm/sec. (B) The liners shall comply with subsections (a)(1)(A), (B), and (C) of this section. (2) The leachate collection and removal system immediately above the top liner shall be designed, constructed, operated, and maintained to collect and remove leachate from the waste pile during the active life and post-closure care period. The Department will specify design and operating conditions in the permit to ensure that the leachate depth over the liner does not exceed 1 foot (30 cm). The leachate collection and removal system shall comply with subsections (c)(3)(C) and (D) of this section. (3) The leachate collection and removal system between the liners, and immediately above the bottom composite liner in the case of multiple leachate collection and removal systems, is also a leak detection system. This leak detection system shall be capable of detecting, collecting, and removing leaks of hazardous constituents at the earliest practicable time through all areas of the top liner likely to be exposed to waste or leachate during the active life and post-closure care period. The requirements for a leak detection system in this subsection are satisfied by installation of a system that is, at a minimum: (A) Constructed with a bottom slope of one percent or more; (B) Constructed of granular drainage materials with a hydraulic conductivity of 1x10-2 cm/sec or more and a thickness of 1 foot (30.5 cm) or more; or constructed of synthetic or geonet drainage materials with a transmissivity of 3x10-5 m2 /sec or more. In cases where the leak detection system is composed of coarse granular material, there shall be a suitable interface (e.g., geotextile) between the leak detection system and any flexible membrane liner, as needed to prevent the

coarse grains from causing a puncture in the flexible membrane liner under the high stress conditions caused by the overlying waste; (C) Constructed of materials that are chemically resistant to the waste managed in the waste pile and the leachate expected to be generated, and of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying wastes, waste cover materials, and equipment used at the waste pile; (D) Designed and operated to minimize clogging during the active life and post-closure care period; and (E) Constructed with sumps and liquid removal methods (e.g., pumps) of sufficient size to collect and remove liquids from the sump and prevent liquids from backing up into the drainage layer. Each unit shall have its own sump(s). The design of each sump and removal system shall provide a method for measuring and recording the volume of liquids present in the sump and of liquids removed. (4) The owner or operator shall collect and remove pumpable liquids in the leak detection system sumps to minimize the head on the bottom liner. (5) The liner system shall be designed, constructed and operated to ensure that leak detection system shall be a minimum of 5 feet above the highest anticipated elevation of groundwater.

(1)

(A) The liner system shall include: 1. A top liner designed and constructed of materials (e.g., a geomembrane) to prevent the migration of hazardous constituents into such liner during the active life and post-closure care period; and 2. A composite bottom liner, consisting of at least two components. The upper component shall be designed and constructed of materials (e.g., a geomembrane) to prevent the migration of hazardous constituents into this component during the active life and post-closure care period. The lower component shall be designed and constructed of materials to minimize the migration of hazardous constituents if a breach in the upper component

were to occur. The lower component shall be constructed of at least 3 feet (91 cm) of compacted soil material with a hydraulic conductivity of no more than 1x10-7 cm/sec. (B) The liners shall comply with subsections (a)(1)(A), (B), and (C) of this section.

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1.

A top liner designed and constructed of materials (e.g., a geomembrane) to prevent the migration of hazardous constituents into such liner during the active life and post-closure care period; and

2.

A composite bottom liner, consisting of at least two components. The upper component shall be designed and constructed of materials (e.g., a geomembrane) to prevent the migration of hazardous constituents into this component during the active life and post-closure care period. The lower component shall be designed and constructed of materials to minimize the migration of hazardous constituents if a breach in the upper component were to occur. The lower component shall be constructed of at least 3 feet (91 cm) of compacted soil material with a hydraulic conductivity of no more than 1x10-7 cm/sec.

(B)

The liners shall comply with subsections (a)(1)(A), (B), and (C) of this section.

(2)

The leachate collection and removal system immediately above the top liner shall be designed, constructed, operated, and maintained to collect and remove leachate from the waste pile during the active life and post-closure care period. The Department will specify design and operating conditions in the permit to ensure that the leachate depth over the liner does not exceed 1 foot (30 cm). The leachate collection and removal system shall comply with subsections (c)(3)(C) and (D) of this section.

(3)

The leachate collection and removal system between the liners, and immediately above the bottom composite liner in the case of multiple leachate collection and removal systems, is also a leak detection system. This leak detection system shall be capable of detecting, collecting, and removing leaks of hazardous constituents at the earliest practicable time through all areas of the top liner likely to be exposed to waste or leachate during the active life and post-closure care period. The requirements for a leak detection system in this subsection are satisfied by installation of a system that is, at a minimum: (A) Constructed with a bottom slope of one percent or more; (B) Constructed of granular drainage materials with a hydraulic conductivity of 1x10-2 cm/sec or more and a thickness of 1 foot (30.5 cm) or more; or constructed of synthetic or geonet drainage materials with a transmissivity of 3x10-5 m2 /sec or more. In cases where the leak detection system is composed of coarse granular material, there shall be a suitable interface (e.g., geotextile) between the leak detection system and any flexible membrane liner, as needed to prevent the coarse grains from causing a puncture in the flexible membrane liner under the high stress conditions caused by the overlying waste; (C) Constructed of materials that are chemically resistant to the waste managed in the waste pile and the leachate expected to be generated, and of

sufficient strength and thickness to prevent collapse under the pressures exerted by overlying wastes, waste cover materials, and equipment used at the waste pile; (D) Designed and operated to minimize clogging during the active life and post-closure care period; and (E) Constructed with sumps and liquid removal methods (e.g., pumps) of sufficient size to collect and remove liquids from the sump and prevent liquids from backing up into the drainage layer. Each unit shall have its own sump(s). The design of each sump and removal system shall provide a method for measuring and recording the volume of liquids present in the sump and of liquids removed.

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(C)

Constructed of materials that are chemically resistant to the waste managed in the waste pile and the leachate expected to be generated, and of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying wastes, waste cover materials, and equipment used at the waste pile;

(D)

Designed and operated to minimize clogging during the active life and post-closure care period; and

(E)

Constructed with sumps and liquid removal methods (e.g., pumps) of sufficient size to collect and remove liquids from the sump and prevent liquids from backing up into the drainage layer. Each unit shall have its own sump(s). The design of each sump and removal system shall provide a method for measuring and recording the volume of liquids present in the sump and of liquids removed.

(4)

The owner or operator shall collect and remove pumpable liquids in the leak detection system sumps to minimize the head on the bottom liner.

(5)

The liner system shall be designed, constructed and operated to ensure that leak detection system shall be a minimum of 5 feet above the highest anticipated elevation of groundwater.

(d)

The collection and removal system shall conform to section 66264.221(e).

(e)

The owner or operator will be exempted from the requirements of subsection (a) of this section, if the Department finds, based on a demonstration by the owner or operator, that alternate design and operating practices, together with location characteristics, will prevent the migration of any hazardous constituents into the ground water or surface water at any future time. In deciding whether to grant an exemption, the Department will consider: (1) the nature and quantity of the wastes; (2) the proposed alternate design and operation; (3) the hydrogeologic setting of the facility, including alternative capacity and thickness of the liners and soils present between the pile and ground water or surface water; (4) all other factors which would influence the quality and mobility of the leachate produced

and the potential for it to migrate to ground water or surface water; and (5) the potential for lateral migration of hazardous constituents which could present a threat to public health or the environment.

(1)

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(2)

the proposed alternate design and operation;

(3)

the hydrogeologic setting of the facility, including alternative capacity and thickness of the liners and soils present between the pile and ground water or surface water;

(4)

all other factors which would influence the quality and mobility of the leachate produced and the potential for it to migrate to ground water or surface water; and

(5)

the potential for lateral migration of hazardous constituents which could present a threat to public health or the environment.

(f)

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

(g)

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

(h)

Collection and holding facilities (e.g., tanks or basins) associated with run-on and

run-off control systems shall be emptied or otherwise managed expeditiously after storms to maintain design capacity of the system.

(i)

If the pile contains any particulate matter which may be subject to wind dispersal, the owner or operator shall cover or otherwise manage the pile to control wind dispersal.

(j)

The Department will specify in the permit all design and operating practices that are necessary to ensure that the requirements of this section are satisfied.

(k)

If the Department determines that monitoring in the normally unsaturated zone as required pursuant to article 6 of this chapter is impracticable, the Department shall require the following when a waste pile is established:(1) the pile shall be underlain by two liners which are designed and constructed in a manner that prevents the migration of liquids into or out of the space between the liners. Both liners shall meet all the specifications of subsection (a)(1) of this section; (2) a leak detection system shall be designed, constructed, maintained and operated between the liners to detect any migration of liquids into the space between the liners; (3) the pile shall have a leachate collection and removal system above the top liner that is designed, constructed, maintained and operated in accordance with subsection (a)(2) of this section.

(1)

the pile shall be underlain by two liners which are designed and constructed in a manner that prevents the migration of liquids into or out of the space between the liners. Both liners shall meet all the specifications of subsection (a)(1) of this section;

(2)

a leak detection system shall be designed, constructed, maintained and operated between the liners to detect any migration of liquids into the space between the liners;

(3)

the pile shall have a leachate collection and removal system above the top liner that is designed, constructed, maintained and operated in accordance with subsection (a)(2) of this section.

(l)

The Department may approve alternative design or operating practices to those specified in subsection (c) of this section if the owner or operator demonstrates to the Department that such design and operating practices, together with location characteristics: (1) Will prevent the migration of any hazardous constituent into the ground water or surface water at least as effectively as the liners and leachate collection and removal systems specified in subsection (c) of this section; and (2) Will allow detection of leaks of hazardous constituents through the top liner at least as effectively.

(1)

Will prevent the migration of any hazardous constituent into the ground water or surface water at least as effectively as the liners and leachate collection and removal systems specified in subsection (c) of this section; and

(2)

Will allow detection of leaks of hazardous constituents through the top liner at least as effectively.

(m)

Subsection (c) of this section does not apply to monofills that are granted a waiver by the Department in accordance with section 66264.221(g).

(n)

The owner or operator of any replacement waste pile unit is exempt from subsection (c) of this section if: (1) The existing unit was constructed in compliance with the design standards of 42 USC section 6924(o)(1)(A)(i) and 42 USC section 6924(o)(5); and (2) There is reason to believe that the liner is functioning as designed.

(1)

The existing unit was constructed in compliance with the design standards of 42 USC section 6924(o)(1)(A)(i) and 42 USC section 6924(o)(5); and

(2)

There is reason to believe that the liner is functioning as designed.