

**06-096**

**Department of Environmental Protection**

**Maine Solid Waste Management Rules:**

**CHAPTER 401**

**LANDFILL SITING,  
DESIGN AND OPERATION**

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- (5) Set-backs and Buffer Strips. The set-backs and buffer strips approved by the Department must be maintained.
- (6) Cell Development Plan. Within the limitations of the approved design for each landfill, operations manuals must include a cell development plan to meet the design standard of section 2.D(6) and 2.F(7). The plan must consist of a conceptual plan for the life of the landfill and the detailed plan for the current two year period as approved as part of the application or most recent annual report, whichever is applicable.
- (7) Compaction. For all landfills waste must be compacted once per operating day and more often as necessary unless otherwise approved by the Department. Waste must be compacted before the placement of cover material.

From December 16 through March 31 in the southern zone and from November 16 through April 30 in the northern zone, solid waste may be deposited at a landfill without compaction or cover if the total lift height during this period does not exceed 12 feet and the total horizontal area covered with waste does not exceed 30,000 square feet. The Department may require daily cover during these time periods if site-specific conditions indicate it is needed.

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NOTE: Northern zone and southern zone are defined in Chapter 400, section 1 of these Rules.

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- (8) Cover. For all special waste and municipal solid waste landfills the cover material placement criteria are as follows:
- (a) Daily cover is required, except that daily cover is not required to be placed on pulp and paper mill sludge. A coarse soil material, such as sand or gravel, for secure landfills and a soil material for non-secure landfills must be placed and compacted to a minimum depth of 6 inches in thickness over all exposed waste at the end of each day of operation to completely and effectively cover the solid waste. Other materials or wastes may be proposed as alternative daily cover by a landfill owner or operator for approval by the Department. Use of residues from the processing of construction and demolition debris will be considered only at a landfill with a Department-approved active gas collection and control system. Alternative daily cover proposals must meet the following standards and include the following submission requirements:
- (i) The alternative daily cover must perform as an acceptable substitute for the soil material it is replacing, i.e. it must be able to control nuisance odor, dust, litter and vectors;
- (ii) The alternative daily cover must not exceed 9" in depth after compaction;
- (iii) The alternative daily cover proposal must consider and evaluate impacts on gas quantity and quality from application of the material;
- (iv) Unless the material proposed as an alternative daily cover has no odor or potential to create a nuisance odor, the submittal must include an odor management plan that includes provisions for the prevention and control

of nuisance odor during routine operations, and a process for responding to any odor complaints received; and

- (v) Use of the alternative daily cover must cease if the Department determines its use causes a nuisance odor or negatively impacts the performance of the facility's active gas collection and control system.

Transition provision: At landfills where an alternative daily cover *derived from the processing of construction and demolition debris* was previously approved, the landfill owner/operator must submit, within 30 days of the effective date of the rule, a demonstration that the facility will comply with the above standards. Landfills without a Department-approved active gas collection and control system must cease use of residues from the processing of construction and demolition debris as alternative daily cover within 30 days of the effective date of this rule.

- (b) Where final grade has been reached or on areas where disposal will not take place within the next 6 months, intermediate cover must be placed within 30 days after cessation of disposal, or as soon as weather conditions allow. Intermediate cover must remain in place in accordance with the requirements of the approved cell development plan. Intermediate cover must consist of 18" of soil or a geosynthetic cover material with a minimum thickness of 20 mils. The soil must be a clay or well-graded till with a minimum of 35% fines and no stones larger than 4 inches. It must be placed and compacted in at least two lifts. Other cover systems or wastes may be proposed by a landfill owner or operator for approval by the Department.

Intermediate cover must completely and effectively cover the solid waste and be graded to limit infiltration and promote runoff. If soil is used these areas must be seeded and mulched to prevent erosion. Within the limitations of the approved design for each landfill, surface water run-off must be directed off of the landfill site. The intermediate cover must be removed before any further landfilling may occur in areas where cover has previously been placed.

The soil component of the intermediate cover may be considered part of the final cover system if the soil and its placement meet the design standards and construction requirements of Section 5. Owner/operators must include these standards and requirements in the operations manual for installation of a phased final cover system as approved by the Department.

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NOTE: Construction packages prepared to implement this requirement do not need to be included in the Operations Manual.

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- (c) For owners/operators approved to construct a phased final cover system throughout the operational life of the landfill, the phased final cover system must be constructed and documented in accordance with the approved plans and specifications. A phased final cover system documented to have been constructed in accordance with the approved plans and specifications will be accepted as the cover system element of final closure provided that the facility is

- (ii) A minimum fines content of 35%; and
  - (iii) A maximum particle size of less than or equal to 3 inches, except as noted in subparagraph (g)(v) below.
- (g) Any barrier soil layer proposed for use in a landfill cover system must be designed to produce a homogeneous layer that eliminates soil clods and preferential flow paths, protect the geomembrane or GCL from puncture, if applicable, and reduce hydraulic conductivity to the maximum extent practicable. To accomplish this the barrier soil layer must meet the following requirements:
- (i) Have a minimum in-place density of 90% of the maximum dry density as measured by ASTM D698 (Standard Proctor);
  - (ii) Be compacted using a kneading action to remold the soil between 0- 4% above optimum moisture content as determined using ASTM D-698 (Standard Proctor);
  - (iii) Be constructed in lifts with a maximum compacted lift thickness of 9 inches;
  - (iv) Be constructed in a manner which provides for lift interface bonding; and
  - (v) Have a maximum stone size less than or equal to 1 inch in the surface layer of the final lift if the barrier soil layer is the prepared subgrade for the geomembrane.

Applicants proposing test pad programs in accordance with the requirements of section 5.J may propose alternative criteria to the requirements of section 5.G(2)(f) and (g) in accordance with the results and conclusions of the test pad program.

- (3) Base Preparation Below Cover Systems. Base preparation must provide support that will facilitate construction of the cover system and minimize the potential for disruption of continuity and function of the final cover during post-closure. Applicants that propose to regrade waste or to bring in significant quantities of wastes to facilitate establishing post-consolidation slopes shall demonstrate that the base preparation is adequate for the proposed cover system. The design of the cover system base layer must consider and evaluate any impacts to the gas collection and control system and the leachate management systems.

The use of residues from the processing of CDD as a shaping and grading material will be considered only at a landfill with a Department-approved active gas collection and control system. Applicants that propose to bring in significant quantities of wastes, including residues from the processing of CDD, to facilitate establishing post-consolidation slopes must demonstrate the following:

- (a) The waste material will perform as an acceptable base material for the proposed cover system;
- (b) The quantity of waste material to be used is appropriate for establishing the final slopes;
- (c) The gas collection and control system can handle gas calculated to be generated by the waste material; and
- (d) The leachate management system can handle additional leachate calculated to be generated by the waste material.

Unless the material proposed to be used in shaping and grading the slopes has no odor or potential to create a nuisance odor, the submittal must include an odor management plan that includes provisions for the prevention and control of nuisance odor, and a process for responding to any odor complaints received.

- (4) Allowable slopes. The minimum allowable post-consolidation slope is 5 percent. The maximum allowable post-consolidation slope is 33 percent unless otherwise approved by the Department. Slopes must be designed to promote run-off in a manner that will prevent erosion of the final cover.
- (5) Vegetation. The final cover must be limed, fertilized, seeded, and mulched as soon as possible after the cover is installed to promote evapotranspiration and to stabilize against erosion. Other areas around the waste disposal area that present a potential for erosion must also be revegetated. The lime, fertilizer, seed and mulch specifications must meet or exceed standards as established by "The Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices" prepared by the Maine Soil and Water Conservation Commission, March, 1991.

Manufactured topsoil may be approved on a site-specific basis. When manufactured topsoil is proposed, the applicant must submit to the Department for review and approval a plan to correct any vegetative cover inadequacies resulting from the use of manufactured topsoil. The plan must identify the funding source for such potential corrective action work.

- (6) Corrective Action Requirements. Owners of landfills with contamination of ground and/or surface water may be required to implement corrective action(s) to meet the performance standards of Section 5.B(1). For these landfills, the owner shall immediately implement any approved corrective action, and shall demonstrate that the corrective action will be successful prior to the end of the post-closure monitoring and maintenance period. Corrective action designs will be considered on a site-specific basis.

**H. Alternative Design Process.** Alternatives to the design standards and requirements of this section may be proposed by the applicant. A variance request pursuant to the provisions of Chapter 400, section 13 is not required for proposals which meet the requirements of this paragraph. The applicant shall submit the following documentation to clearly and convincingly demonstrate technical equivalency of the proposed alternative:

- (8) Side Slopes. Side slopes of the disposal area shall not be steeper than 3 horizontal to 1 vertical.
- (9) Compaction. Wastes shall be compacted on a weekly basis if the facility is operated less than 5 days per week and on a daily basis if operated for 5 or more days per week. From December 16 through March 31 in the southern zone and from November 16 through April 30 in the northern zone, solid waste may be deposited at the landfill without compaction or cover if the total lift height during this period does not exceed 12 feet and the total horizontal area covered with waste does not exceed 20,000 square feet.
- (10) Cell Development Plan. All landfills must operate in accordance with the cell development plan submitted to and approved by the Department, as required by section 7.F(2)(b).

The active area shall be covered with soil or other approved material at a frequency so that no more than 1/2 acre remains uncovered at any time. Operational cover shall be placed and compacted to 6 inches thickness in such a manner that the waste is effectively covered. Cover shall be placed in accordance with the requirements of the approved cell development plan.

Use of residues from the processing of construction and demolition debris will be considered only at a landfill with a Department-approved active gas collection and control system. Alternative *dailyoperational* cover proposals must meet the following standards and include the following submission requirements:

- (i) The alternative *dailyoperational* cover must perform as an acceptable substitute for the soil material it is replacing, i.e. it must be able to control nuisance odor, dust, litter and vectors;
- (ii) The alternative *dailyoperational* cover must not exceed 9" in depth after compaction;
- (iii) The alternative *dailyoperational* cover proposal must consider and evaluate impacts on gas quantity and quality from application of the material;
- (iv) Unless the material proposed as an alternative *dailyoperational* cover has no odor or potential to create a nuisance odor, the submittal must include an odor management plan that includes provisions for the prevention and control of nuisance odor during routine operations, and a process for responding to any odor complaints received; and
- (v) Use of the alternative *dailyoperational* cover must cease if the Department determines its use causes a nuisance odor or negative impacts the performance of the facility's active gas collection and control system.

Transition provision: At landfills where an alternative *dailyoperational* cover derived from the processing of construction and demolition debris was previously approved, the landfill owner/operator must submit, within 30 days of the effective date of the rule, a demonstration that the facility will comply with the above standards. Landfills without a Department-approved active gas collection and control system must cease use of residues from the processing of construction and demolition debris as alternative *dailyoperational* cover within 30 days of the effective date of this rule.