

**3745-27-81 Application for a permit to stabilize waste through bulk liquid addition.**

The permit to install application shall comply with rule 3745-27-06 of the Administrative Code and this rule. The permit to install application shall contain the following:

- (A) Plan drawings. Detail engineering plans, specifications, and information for the research, development, or demonstration project shall include the following:
  - (1) The location of the designated research, development, or demonstration project area and the control area, if one is proposed.
  - (2) A demonstration that the ground water aquifer system protection criteria in paragraph (H)(2) of rule 3745-27-07 of the Administrative Code are met in the designated research, development, or demonstration project area.
  - (3) The design of the composite liner system underlying the designated research, development, or demonstration project area.
  - (4) For any flexible membrane liner to be installed as part of the composite liner system, the horizontal limits of the liner integrity survey.
  - (5) A demonstration that the leachate in the designated research, development, or demonstration project area will be physically separated from the leachate from the rest of the landfill and monitored.
  - (6) The specifications for the leachate collection drainage layer material underlying the designated research, development, or demonstration project area, including permeability.
  - (7) The design of the liquid addition system.
  - (8) The horizontal and vertical limits of where liquid addition will occur.
  - (9) The design of the gas management system.
- (B) Variance and exemption requests. In addition to variance and exemption requests, include any requested alternative materials, designs, or construction requirements and any alterations to the authorizing document necessary to implement the research, development, or demonstration project.
- (C) Calculations. The design calculations shall include the following:
  - (1) Capacity of the leachate collection and management system.
  - (2) Capacity of the gas management system.
  - (3) Analysis of slope stability in the designated research, development, or demonstration project area with the piezometric surface established at the top of waste.
  - (4) The amount of liquid that can be added without exceeding one foot of head on the composite liner system.
  - (5) The financial assurance cost estimate for closure of the facility.
- (D) Research, development, and demonstration information. The application shall provide the following information regarding the objective of the research, development, or demonstration project:
  - (1) The hypothesis.

- (2) The conditions necessary to meet the desired outcome.
- (3) A description of test and control groups, including whether a control area will be employed at the facility.
- (4) The variables to be changed, measured, and controlled.
- (5) The time period for conducting the research, development, or demonstration project.

[Comment: The time period of the authorization to stabilize waste through bulk liquid addition cannot exceed three years (see rules 3745-27-82 and 3745-27-85 of the Administrative Code). Therefore, the design of the project should result in an outcome that can be determined within that time frame.]

- (6) A summary of research as it relates to the project, including the need for this project and a list of published papers supporting the project hypothesis.
- (E) Operational information for the authorization to stabilize waste through bulk liquid addition. The application shall provide the following information regarding control of the waste stabilization process in the research, development, or demonstration project:
- (1) Waste acceptance, including the following:
    - (a) Identification of the types of liquids (including leachate, water, and bulk liquids) to be added and why the addition will stabilize waste.
    - (b) Identification of any waste, liquid, or material types or characteristics that may be detrimental for the purposes of the research, development, or demonstration project.
    - (c) Identification of any waste or liquid types or characteristics to be prohibited from being disposed in the designated research, development, or demonstration project area and in the control area, if one is proposed. At a minimum, wastes which exhibit an exothermic reaction when combined with the bulk liquid are likely to result in a surface or subsurface fire shall be identified on this list (e.g., aluminum production waste).
  - (2) Description of methods to be used to introduce the liquid (including leachate, water, and bulk liquids) into the waste mass.
  - (3) Description of any special operational activities or equipment, including whether the sanitary landfill facility will be operated under aerobic conditions.
  - (4) Surface elevation control points to be established.
  - (5) Description of procedures to ensure that daily cover or disposal of low permeability solid waste will not adversely affect the free movement of liquids and gases within the waste mass.
  - (6) When landfill gas collection will commence with respect to introduction of bulk liquids to the designated area.
- (F) Monitoring plan for the authorization to stabilize waste through bulk liquid addition. The application shall provide information regarding the monitoring of the following:
- (1) If certain liquid qualities or characteristics are necessary to conduct the research, development, or demonstration project, the monitoring parameters and frequency.
  - (2) Waste, liquid, and material types or characteristics in order to do the following:

- (a) Prevent the disposal or application of prohibited items identified in accordance with paragraph (E)(1)(c) of this rule to the designated research, development, or demonstration project area or control area, if one is proposed.
  - (b) Record acceptance of detrimental items identified in accordance with paragraph (E)(1)(b) of this rule to the designated research, development, or demonstration project area or control area, if one is proposed.
- (3) Odors, including how the owner or operator will do the following:
- (a) Respond to complaints from citizens.
  - (b) Locate and identify the source of the odor.
- (4) Any monitoring in addition to that required in rule 3745-27-84 of the Administrative Code for the following:
- (a) To detect a fire at the facility.
  - (b) To determine the degree of waste stabilization in the designated research, development, or demonstration project area and in the control group.
  - (c) To determine the impact on the flexible membrane liner component of the composite liner system.
  - (d) To determine if liquid addition is excessive.
- (5) Any additional monitoring of conditions necessary to meet the desired outcome of the project.

Five Year Review (FYR) Dates: 11/03/2016 and 11/01/2021

CERTIFIED ELECTRONICALLY

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Certification

11/03/2016

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Date

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