



Ohio Administrative Code

Rule 3745-55-93 Containment and detection of releases.

Effective: September 5, 2010

(A) In order to prevent the release of hazardous waste or hazardous constituents to the environment, secondary containment that meets the requirements of this rule must be provided [except as provided in paragraphs (F) and (G) of this rule]:

(1) For all new and existing tank systems or components, prior to their being put into service;

(2) For tank systems that store or treat materials that become hazardous wastes, within two years after the hazardous waste listing, or when the system has reached fifteen years of age, whichever comes later.

(B) Secondary containment systems must be:

(1) Designed, installed, and operated to prevent any migration of wastes or accumulated liquid out of the system to soil, ground water, or surface water at any time during the use of the tank system; and

(2) Capable of detecting and collecting releases and accumulated liquids until the collected material is removed.

(C) To meet the requirements of paragraph (B) of this rule, secondary containment systems must be, at a minimum:

(1) Constructed of or lined with materials that are compatible with the waste(s) to be placed in the tank system and must have sufficient strength and thickness to prevent failure owing to pressure gradients (including static head and external hydrological forces), physical contact with the waste to which it is exposed, climatic conditions, and the stress of daily operation (including stresses from nearby vehicular traffic);

(2) Placed on a foundation or base capable of providing support to the secondary containment



system, resistance to pressure gradients above and below the system, and capable of preventing failure due to settlement, compression, or uplift;

(3) Provided with a leak-detection system that is designed and operated so that it will detect the failure of either the primary or secondary containment structure or the presence of any release of hazardous or accumulated liquid in the secondary containment system within twenty-four hours, or at the earliest practicable time if the owner or operator can demonstrate to the director that existing detection technologies or site conditions will not allow detection of a release within twenty-four hours; and

(4) Sloped or otherwise designed or operated to drain and remove liquids resulting from leaks, spills, or precipitation. Spilled or leaked waste and accumulated precipitation must be removed from the secondary containment system within twenty-four hours, or in as timely a manner as is possible to prevent harm to human health and the environment, if the owner or operator can demonstrate to the director that removal of the released waste or accumulated precipitation cannot be accomplished within twenty-four hours.

[Comment: If the collected material is a hazardous waste under Chapter 3745-51 of the Administrative Code, it is subject to management as a hazardous waste in accordance with all applicable requirements of Chapters 3745-52, 3745-53, 3745-54 to 3745-57, 3745-65 to 3745-69, 3745-205, and 3745-256 of the Administrative Code. If the collected material is discharged through a point source to waters of the state or discharged to a publicly owned treatment works (POTW), it is subject to the requirements of Chapter 6111. of the Revised Code. If the collected material is released to the environment, it may be subject to the reporting requirements of 40 CFR Part 302.]

(D) Secondary containment for tanks must include one or more of the following devices:

(1) A liner (external to the tank);

(2) A vault;

(3) A double-walled tank; or



(4) An equivalent device as approved by the director.

(E) In addition to the requirements of paragraphs (B), (C), and (D) of this rule, secondary containment systems must satisfy the following requirements:

(1) External liner systems must be:

(a) Designed or operated to contain one hundred per cent of the capacity of the largest tank within its boundary;

(b) Designed or operated to prevent run-on or infiltration of precipitation into the secondary containment system unless the collection system has sufficient excess capacity to contain run-on or infiltration. Such additional capacity must be sufficient to contain precipitation from a twenty-five-year, twenty-four-hour rainfall event;

(c) Free of cracks or gaps; and

(d) Designed and installed to surround the tank completely and to cover all surrounding earth likely to come into contact with the waste if the waste is released from the tank(s) (i.e., capable of preventing lateral as well as vertical migration of the waste); and

(e) Constructed with chemical-resistant water stops in place at all joints, if any (for concrete liners only); and

(f) Provided with an impermeable interior coating or lining that is compatible with the stored waste and that will prevent migration of wastes into the concrete (for concrete liners only).

(2) Vault system must be:

(a) Designed or operated to contain one hundred per cent of the capacity of the largest tank within its boundary;

(b) Designed or operated to prevent run-on or infiltration of precipitation into the secondary



containment system unless the collection system has sufficient excess capacity to contain run-on or infiltration. Such additional capacity must be sufficient to contain precipitation from a twenty-five-year, twenty-four-hour rainfall event;

(c) Constructed with chemical-resistant water stops in place at all joints (if any);

(d) Provided with an impermeable interior coating or lining that is compatible with the stored waste and that will prevent migration of waste into the concrete;

(e) Provided with a means to protect against the formation of and ignition of vapors within the vault, if the waste being stored or treated:

(i) Meets the definition of ignitable waste under rule 3745-51-21 of the Administrative Code; or

(ii) Meets the definition of reactive waste under rule 3745-51-23 of the Administrative Code and may form an ignitable or explosive vapor; and

(f) Provided with an exterior moisture barrier or be otherwise designed or operated to prevent migration of moisture into the vault if the vault is subject to hydraulic pressure.

(3) Double-walled tanks must be:

(a) Designed as an integral structure (i.e., an inner tank completely enveloped within an outer shell) so that any release from the inner tank is contained by the outer shell;

(b) Protected, if constructed of metal, from both corrosion of the primary tank interior and of the external surface of the outer shell; and

(c) Provided with a built-in continuous leak-detection system capable of detecting a release within twenty-four hours, or at the earliest practicable time, if the owner or operator can demonstrate to the director, and the director concludes, that the existing detection technology or site conditions would not allow detection of a release within twenty-four hours.



[Comment: The provisions outlined in the "Steel Tank Institute's (STI) Standard for Dual-Wall Underground Steel Storage Tanks" may be used as guidelines for aspects of the design of underground steel double-walled tanks.]

(F) Ancillary equipment must be provided with secondary containment (e.g., trench, jacketing, double-walled piping) that meets the requirements of paragraphs (B) and (C) of this rule, except for:

(1) Aboveground piping (exclusive of flanges, joints, valves, and other connections) that are visually inspected for leaks on a daily basis;

(2) Welded flanges, welded joints, and welded connections, that are visually inspected for leaks on a daily basis;

(3) Sealless or magnetic coupling pumps and sealless valves, that are visually inspected for leaks on a daily basis; and

(4) Pressurized aboveground piping systems with automatic shut-off devices (e.g., excess flow check valves, flow metering shutdown devices, loss of pressure-actuated shut-off devices) that are visually inspected for leaks on a daily basis.

(G) The owner or operator may obtain a variance from the requirements of this rule if the director finds, as a result of a demonstration by the owner or operator that alternative design and operating practices, together with location characteristics, will prevent the migration of any hazardous waste or hazardous constituents into the ground water or surface water at least as effectively as secondary containment during the active life of the tank system or that in the event of a release that does migrate to ground water or surface water, no substantial present or potential hazard will be posed to human health or the environment. New underground tank systems may not, per a demonstration in accordance with paragraph (G)(2) of this rule, be exempted from the secondary containment requirements of this rule.

(1) In deciding whether to grant a variance based on a demonstration of equivalent protection of ground water and surface water, the director will consider:



- (a) The nature and quantity of the wastes;
 - (b) The proposed alternate design and operation;
 - (c) The hydrogeologic setting of the facility, including the thickness of soils present between the tank system and ground water; and
 - (d) All other factors that would influence the quality and mobility of the hazardous constituents and the potential for them to migrate to ground water or surface water.
- (2) In deciding whether to grant a variance based on a demonstration of no substantial present or potential hazard, the director will consider:
- (a) The potential adverse effects on ground water, surface water, and land quality, taking into account:
 - (i) The physical and chemical characteristics of the waste in the tank system, including its potential for migration;
 - (ii) The hydrogeological characteristics of the facility and surrounding land;
 - (iii) The potential for health risks caused by human exposure to waste constituents;
 - (iv) The potential for damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and
 - (v) The persistence and permanence of the potential adverse effects; and
 - (b) The potential adverse effects of a release on ground water quality, taking into account:
 - (i) The quantity and quality of ground water and the direction of ground water flow;
 - (ii) The proximity and withdrawal rates of ground water users;



- (iii) The current and future uses of ground water in the area; and
 - (iv) The existing quality of ground water, including other sources of contamination and their cumulative impact on the ground water quality; and
- (c) The potential adverse effects of a release on surface water quality, taking into account:
- (i) The quantity and quality of ground water and the direction of ground water flow;
 - (ii) The patterns of rainfall in the region;
 - (iii) The proximity of the tank system to surface waters;
 - (iv) The current and future uses of surface waters in the area and any water quality standards established for those surface waters; and
 - (v) The existing quality of surface water, including other sources of contamination and the cumulative impact on surface water quality; and
- (d) The potential adverse effects of a release on the land surrounding the tank system, taking into account:
- (i) The patterns of rainfall in the region; and
 - (ii) The current and future uses of the surrounding land.
- (3) The owner or operator of a tank system, for which a variance from secondary containment had been granted in accordance with the requirements of paragraph (G)(1) of this rule, at which a release of hazardous waste has occurred from the primary tank system but has not migrated beyond the zone of engineering control (as established in the variance), must:
- (a) Comply with the requirements of paragraphs (A), (B), (C), (E), and (F) of rule 3745-55-96 of the



Administrative Code; and

(b) Decontaminate or remove contaminated soil to the extent necessary to:

(i) Enable the tank system for which the variance was granted to resume operation with the capability for the detection of releases at least equivalent to the capability it had prior to the release; and

(ii) Prevent the migration of hazardous waste or hazardous constituents to ground water or surface water; and

(c) If contaminated soil cannot be removed or decontaminated in accordance with paragraph (G)(3)(b) of this rule, comply with the requirements of paragraph (B) of rule 3745-55-97 of the Administrative Code.

(4) The owner or operator of a tank system, for which a variance from secondary containment had been granted in accordance with the requirements of paragraph (G)(1) of this rule, at which a release of hazardous waste has occurred from the primary tank system and has migrated beyond the zone of engineering control (as established in the variance), must:

(a) Comply with the requirements of paragraphs (A), (B), (C), and (D) of rule 3745-55-96 of the Administrative Code; and

(b) Prevent the migration of hazardous waste or hazardous constituents to ground water or surface water, if possible, and decontaminate or remove contaminated soil. If contaminated soil cannot be decontaminated or removed or if ground water has been contaminated, the owner or operator must comply with the requirements of paragraph (B) of rule 3745-55-97 of the Administrative Code; and

(c) If repairing, replacing, or reinstalling the tank system, provide secondary containment in accordance with the requirements of paragraphs (A) to (F) of this rule or reapply for a variance from secondary containment and meet the requirements for new tank systems in rule 3745-55-92 of the Administrative Code if the tank system is replaced. The owner or operator must comply with these requirements for new tank systems in rule 3745-55-92 of the Administrative Code if the tank system



is replaced. The owner or operator must comply with these requirements even if contaminated soil can be decontaminated or removed and ground water or surface water has not been contaminated.

(H) The following procedures must be followed in order to request a variance from secondary containment:

(1) The director must be notified in writing by the owner or operator that he intends to conduct and submit a demonstration for a variance from secondary containment as allowed in paragraph (G) of this rule according to the following schedule:

(a) For existing tank systems, at least twenty-four months prior to the date that secondary containment must be provided in accordance with paragraph (A) of this rule.

(b) For new tank systems, at least thirty days prior to entering into a contract for installation.

(2) As part of the notification, the owner or operator must also submit to the director a description of the steps necessary to conduct the demonstration and a timetable for completing each of the steps. The demonstration must address each of the factors listed in paragraph (G)(1) or (G)(2) of this rule;

(3) The demonstration for a variance must be completed within one hundred eighty days after notifying the director of an intent to conduct the demonstration; and

(4) If a variance is granted under paragraph (H) of this rule, the director will require the permittee to construct and operate the tank system in the manner that was demonstrated to meet the requirements for the variance.

(I) All tank systems, until such time as secondary containment that meets the requirements of this rule is provided, must comply with the following:

(1) For non-enterable underground tanks, a leak test that meets the requirements of paragraph (B)(5) of rule 3745-55-91 of the Administrative Code or other tank integrity method, as approved or required by the director, must be conducted at least annually.



(2) For other than non-enterable underground tanks, the owner or operator must either conduct a leak test as in paragraph (I)(1) of this rule or develop a schedule and procedure for an assessment of the overall condition of the tank system by a qualified professional engineer. The schedule and procedures must be adequate to detect obvious cracks, leaks, and corrosion or erosion that may lead to cracks and leaks. The owner or operator must remove the stored waste from the tank, if necessary, to allow the condition of all internal tank surfaces to be assessed. The frequency of these assessments must be based on the material of construction of the tank and its ancillary equipment, the age of the system, the type of corrosion or erosion protection used, the rate of corrosion or erosion observed during the previous inspection, and the characteristics of the waste being stored or treated.

(3) For ancillary equipment, a leak test or other integrity assessment as approved by the director must be conducted at least annually.

[Comment: The practices described in the "American Petroleum Institute (API)" publication, "Guide for Inspection of Refinery Equipment," chapter XIII, "Atmospheric, and Low-Pressure Storage Tanks," fourth edition, 1981, may be used, where applicable, as guidelines for assessing the overall condition of the tank system.]

(4) The owner or operator must maintain on file at the facility a record of the results of the assessments conducted in accordance with paragraphs (I)(1) to (I)(3) of this rule.

(5) If a tank system or component is found to be leaking or unfit for use as a result of the leak test or assessment in paragraphs (I)(1) to (I)(3) of this rule, the owner or operator must comply with the requirements of rule 3745-55-96 of the Administrative Code.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-50-11 of the Administrative Code titled "Incorporated by reference."]