



Ohio Administrative Code

Rule 3745-57-72 Corrective action management units (CAMUs).

Effective: September 29, 2021

(A) To implement remedies under rule 3745-54-101 of the Administrative Code or Section 3008(h) of RCRA, or to implement remedies at a permitted facility that is not subject to rule 3745-54-101 of the Administrative Code, the director may designate an area at the facility as a corrective action management unit under the requirements in this rule. Corrective action management unit (CAMU) means an area within a facility that is used only for managing CAMU-eligible wastes for implementing corrective action or cleanup at the facility. A CAMU shall be located within the contiguous property under the control of the owner or operator where the wastes to be managed in the CAMU originated. One or more CAMUs may be designated at a facility.

(1) CAMU-eligible waste means:

(a) All non-hazardous and hazardous wastes, and all media (including ground water, surface water, soils, and sediments) and debris, that are managed for implementing cleanup. As-generated wastes (either hazardous or non-hazardous) from ongoing industrial operations at a site are not CAMU-eligible wastes.

(b) Wastes that would otherwise meet the description in paragraph (A)(1)(a) of this rule are not "CAMU-Eligible Wastes" where:

(i) The wastes are hazardous wastes found during cleanup in intact or substantially intact containers, tanks, or other non-land-based units found above ground, unless the wastes are first placed in the tanks, containers or non-land-based units as part of cleanup, or the containers or tanks are excavated during the course of cleanup; or

(ii) The director exercises the discretion in paragraph (A)(2) of this rule to prohibit the wastes from management in a CAMU.

(c) Notwithstanding paragraph (A)(1)(a) of this rule, where appropriate, as-generated non-hazardous



waste may be placed in a CAMU where such waste is used to facilitate treatment or the performance of the CAMU.

(2) Where appropriate, the director may prohibit the placement of waste in a CAMU where the director has or receives information that such wastes have not been managed in compliance with applicable land disposal treatment standards of Chapter 3745-270 of the Administrative Code, or applicable unit design requirements of Chapters 3745-54 to 3745-57 and 3745-205 of the Administrative Code, or applicable unit design requirements of Chapters 3745-65 to 3745-69 and 3745-256 of the Administrative Code, or that non-compliance with other applicable requirements of the hazardous waste rules likely contributed to the release of the waste.

(3) Prohibition against placing liquids in CAMUs.

(a) The placement of bulk or noncontainerized liquid hazardous waste or free liquids contained in hazardous waste (whether or not sorbents have been added) in any CAMU is prohibited except where placement of such wastes facilitates the remedy selected for the waste.

(b) The requirements in paragraph (C) of rule 3745-57-14 of the Administrative Code for placement of containers holding free liquids in landfills apply to placement in a CAMU except where placement facilitates the remedy selected for the waste.

(c) The placement of any liquid which is not a hazardous waste in a CAMU is prohibited unless such placement facilitates the remedy selected for the waste or a demonstration is made pursuant to paragraph (E) of rule 3745-57-14 of the Administrative Code.

(d) The absence or presence of free liquids in either a containerized waste or a bulk waste shall be determined in accordance with paragraph (B) of rule 3745-57-14 of the Administrative Code. Sorbents used to treat free liquids in CAMUs shall meet the requirements of paragraph (D) of rule 3745-57-14 of the Administrative Code.

(4) Placement of CAMU-eligible wastes into or within a CAMU does not constitute land disposal of hazardous wastes.



(5) Consolidation or placement of CAMU-eligible wastes into or within a CAMU does not constitute creation of a unit subject to minimum technology requirements.

(B)

(1) The director may designate a regulated unit [as described in paragraph (A)(2) of rule 3745-54-90 of the Administrative Code] as a CAMU, or may incorporate a regulated unit into a CAMU, if:

(a) The regulated unit is closed or closing, meaning the regulated unit has begun the closure process under rule 3745-55-13 or 3745-66-13 of the Administrative Code; and

(b) Inclusion of the regulated unit enhances implementation of effective, protective, and reliable remedial actions for the facility.

(2) The requirements of rules 3745-54-90 to 3745-54-101, 3745-55-10 to 3745-55-20, and 3745-55-40 to 3745-55-51 of the Administrative Code and the unit-specific requirements of Chapters 3745-54 to 3745-57, 3745-65 to 3745-69, 3745-205, and 3745-256 of the Administrative Code that applied to the regulated unit continue to apply to that portion of the CAMU after incorporation into the CAMU.

(C) The director will designate a CAMU that will be used for storage or treatment only in accordance with paragraph (F) of this rule. The director will designate all other CAMUs in accordance with the following:

(1) The CAMU shall facilitate the implementation of reliable, effective, protective, and cost-effective remedies;

(2) Waste management activities associated with the CAMU shall not create unacceptable risks to humans or to the environment resulting from exposure to hazardous wastes or hazardous constituents;

(3) The CAMU shall include uncontaminated areas of the facility only if including such areas for the purpose of managing CAMU-eligible waste is more protective than management of such wastes at contaminated areas of the facility;



(4) Areas within the CAMU where wastes remain in place after closure of the CAMU shall be managed and contained to minimize future releases, to the extent practicable;

(5) The CAMU shall expedite the timing of remedial activity implementation when appropriate and practicable;

(6) When appropriate, the CAMU shall enable the use of treatment technologies (including innovative technologies) to enhance the long-term effectiveness of remedial actions by reducing the toxicity, mobility, or volume of wastes that will remain in place after closure of the CAMU; and

(7) To the extent practicable, the CAMU shall minimize the land area of the facility upon which wastes will remain in place after closure of the CAMU.

(D) The owner or operator shall provide sufficient information to enable the director to designate a CAMU in accordance with the criteria in this rule. Unless not reasonably available, this shall include information on:

(1) The origin of the waste and how the waste was subsequently managed (including a description of the timing and circumstances surrounding the disposal or release);

(2) Whether the waste was listed or identified as hazardous at the time of disposal or release; and

(3) Whether the disposal or release of the waste occurred before or after the land disposal requirements of Chapter 3745-270 of the Administrative Code were in effect for the waste listing or characteristic.

(E) The director will specify, in the permit or order, requirements for CAMUs to include the following:

(1) The areal configuration of the CAMU.

(2) Except as provided in paragraph (G) of this rule, requirements for CAMU-eligible waste



management to include the specification of applicable design, operation, treatment and closure requirements in the hazardous waste rules.

(3) Minimum design requirements. CAMUs, except as provided in paragraph (F) of this rule, into which wastes are placed shall be designed in accordance with the following:

(a) Unless the director approves alternate requirements under paragraph (E)(3)(b) of this rule, CAMUs that consist of new, replacement, or laterally expanded units shall include a composite liner and a leachate collection system that is designed and constructed to maintain less than a thirty centimeter depth of leachate over the liner. For purposes of this rule, composite liner means a system consisting of two components. The upper component shall consist of a minimum thirty mil flexible membrane liner, and the lower component shall consist of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than 1×10^{-7} centimeters per second. Flexible membrane liner components consisting of high density polyethylene shall be at least sixty mil thick. The flexible membrane liner component shall be installed in direct and uniform contact with the compacted soil component;

(b) Alternate requirements. The director may approve alternate requirements if:

(i) The director finds that alternate design and operating practices, together with location characteristics, would prevent the migration of any hazardous constituents into the ground water or surface water at least as effectively as the liner and leachate collection systems in paragraph (E)(3)(a) of this rule; or

(ii) The CAMU is to be established in an area with existing significant levels of contamination, and the director finds that an alternative design, including a design that does not include a liner, would prevent migration from the unit that would exceed long-term remedial goals.

(4) Minimum treatment requirements. Unless the wastes will be placed in a CAMU for storage or treatment only in accordance with paragraph (F) of this rule, CAMU-eligible wastes that, absent this rule, would be subject to the treatment requirements of Chapter 3745-270 of the Administrative Code, and that the director determines contain principal hazardous constituents shall be treated to the standards specified in paragraph (E)(4)(c) of this rule.



(a) Principal hazardous constituents are those constituents that the director determines pose a risk to human health and the environment substantially higher than the cleanup levels or goals at the site.

(i) In general, the director will designate as principal hazardous constituents:

(A) Carcinogens that pose a potential direct risk from ingestion or inhalation at the site at or above 10^{-3} ; and

(B) Non-carcinogens that pose a potential direct risk from ingestion or inhalation at the site an order of magnitude or greater over the reference dose of the non-carcinogen.

(ii) The director will also designate constituents as principal hazardous constituents, where appropriate, when risks to human health and the environment posed by the potential migration of constituents in wastes to ground water are substantially higher than cleanup levels or goals at the site. To make such a designation, the director may consider such factors as constituent concentrations, and fate and transport characteristics under site conditions.

(iii) The director also may designate other constituents as principal hazardous constituents that the director determines pose a risk to human health and the environment substantially higher than the cleanup levels or goals at the site.

(b) In determining which constituents are "principal hazardous constituents," the director will consider all constituents which, absent this rule, would be subject to the treatment requirements in Chapter 3745-270 of the Administrative Code.

(c) Waste that the director determines contains principal hazardous constituents shall meet treatment standards determined in accordance with paragraph (E)(4)(d) or (E)(4)(e) of this rule.

(d) Treatment standards for wastes placed in CAMUs.

(i) For non-metals, treatment shall achieve ninety per cent reduction in total principal hazardous constituent concentrations, except as provided by paragraph (E)(4)(d)(iii) of this rule.



(ii) For metals, treatment shall achieve ninety per cent reduction in principal hazardous constituent concentrations as measured in leachate from the treated waste or media [tested according to the toxicity characteristic leaching procedure (TCLP)] or ninety per cent reduction in total constituent concentrations (when a metal removal treatment technology is used), except as provided by paragraph (E)(4)(d)(iii) of this rule.

(iii) When treatment of any principal hazardous constituent to a ninety per cent reduction standard would result in a concentration less than ten times the universal treatment standard for that constituent, treatment to achieve constituent concentrations less than ten times the universal treatment standard is not required. Universal treatment standards are identified in the table in rule 3745-270-48 of the Administrative Code.

(iv) For waste exhibiting the hazardous characteristic of ignitability, corrosivity or reactivity, the waste also shall be treated to eliminate these characteristics.

(v) For debris, the debris shall be treated in accordance with rule 3745-270-45 of the Administrative Code, or by methods or to levels established under paragraphs (E)(4)(d)(i) to (E)(4)(d)(iv) or paragraph (E)(4)(e) of this rule, whichever the director determines is appropriate.

(vi) Alternatives to TCLP. For metal-bearing wastes for which metals removal treatment is not used, the director may specify a leaching test other than the TCLP (U.S. EPA publication SW-846 method 1311) to measure treatment effectiveness, provided the director determines that an alternative leach testing protocol is appropriate for use, and that the alternative more accurately reflects conditions at the site that affect leaching.

(e) Adjusted standards. The director may adjust the treatment level or method in paragraph (E)(4)(d) of this rule to a higher or lower level, based on one or more of the following factors, as appropriate. The adjusted level or method shall be protective of human health and the environment:

(i) The technical impracticability of treatment to the levels or by the methods in paragraph (E)(4)(d) of this rule;



(ii) The levels or methods in paragraph (E)(4)(d) of this rule would result in concentrations of principal hazardous constituents that are significantly above or below cleanup standards applicable to the site;

(iii) The views of the affected local community on the treatment levels or methods in paragraph (E)(4)(d) of this rule as applied at the site, and, for treatment levels, the treatment methods necessary to achieve these levels;

(iv) The short-term risks presented by the on-site treatment method necessary to achieve the levels or treatment methods in paragraph (E)(4)(d) of this rule;

(v) The long-term protection offered by the engineering design of the CAMU and related engineering controls:

(A) Where the treatment standards in paragraph (E)(4)(d) of this rule are substantially met and the principal hazardous constituents in the waste or residuals are of very low mobility; or

(B) Where cost-effective treatment has been used and the CAMU meets the liner and leachate collection requirements for new land disposal units at paragraphs (C) and (D) of rule 3745-57-03 of the Administrative Code; or

(C) Where, after review of appropriate treatment technologies, the director determines that cost-effective treatment is not reasonably available, and the CAMU meets the liner and leachate collection requirements for new land disposal units at paragraphs (C) and (D) of rule 3745-57-03 of the Administrative Code; or

(D) Where cost-effective treatment has been used and the principal hazardous constituents in the treated wastes are of very low mobility; or

(E) Where, after review of appropriate treatment technologies, the director determines that cost-effective treatment is not reasonably available, the principal hazardous constituents in the wastes are of very low mobility, and either the CAMU meets or exceeds the liner standards for new, replacement, or laterally expanded CAMUs in paragraphs (E)(3)(a) and (E)(3)(b) of this rule, or the



CAMU provides substantially equivalent or greater protection.

(f) The treatment required by the treatment standards shall be completed prior to, or within a reasonable time after, placement in the CAMU.

(g) For the purpose of determining whether wastes placed in CAMUs have met site-specific treatment standards, the director, as appropriate, may specify a subset of the principal hazardous constituents in the waste as analytical surrogates for determining whether treatment standards have been met for other principal hazardous constituents. This specification will be based on the degree of difficulty of treatment and analysis of constituents with similar treatment properties.

(5) Except as provided in paragraph (F) of this rule, requirements for ground water monitoring and corrective action that are sufficient to:

(a) Continue to detect and to characterize the nature, extent, concentration, direction, and movement of existing releases of hazardous constituents in ground water from sources located within the CAMU; and

(b) Detect and subsequently characterize releases of hazardous constituents to ground water that may occur from areas of the CAMU in which wastes will remain in place after closure of the CAMU; and

(c) Require notification to the director and corrective action as necessary to protect human health and the environment for releases to ground water from the CAMU.

(6) Except as provided in paragraph (F) of this rule, closure and post-closure requirements:

(a) Closure of corrective action management units shall:

(i) Minimize the need for further maintenance; and

(ii) Control, minimize, or eliminate, to the extent necessary to protect human health and the environment, for areas where wastes remain in place, post-closure escape of hazardous wastes, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition products to



the ground, to surface waters, or to the atmosphere.

(b) Requirements for closure of CAMUs shall include the following, as appropriate and as deemed necessary by the director for a given CAMU:

(i) Requirements for excavation, removal, treatment, or containment of wastes; and

(ii) Requirements for removal and decontamination of equipment, devices, and structures used in CAMU-eligible waste management activities within the CAMU.

(c) In establishing specific closure requirements for CAMUs under paragraph (E) of this rule, the director will consider the following factors:

(i) CAMU characteristics;

(ii) Volume of wastes which remain in place after closure;

(iii) Potential for releases from the CAMU;

(iv) Physical and chemical characteristics of the waste;

(v) Hydrogeological and other relevant environmental conditions at the facility which may influence the migration of any potential or actual releases; and

(vi) Potential for exposure of humans and environmental receptors if releases were to occur from the CAMU.

(d) Cap requirements.

(i) At final closure of the CAMU, for areas in which wastes will remain after closure of the CAMU, with constituent concentrations at or above remedial levels or goals applicable to the site, the owner or operator shall cover the CAMU with a final cover designed and constructed to meet the following performance criteria, except as provided in paragraph (E)(6)(d)(ii) of this rule:



- (A) Provide long-term minimization of migration of liquids through the closed unit;
- (B) Function with minimum maintenance;
- (C) Promote drainage and minimize erosion or abrasion of the cover;
- (D) Accommodate settling and subsidence so that the cover's integrity is maintained; and
- (E) Have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present.
 - (ii) The director may determine that modifications to paragraph (E)(6)(d)(i) of this rule are needed to facilitate treatment or the performance of the CAMU (e.g., to promote biodegradation).
- (e) Post-closure requirements as necessary to protect human health and the environment, to include, for areas where wastes will remain in place, monitoring and maintenance activities, and the frequency with which such activities shall be performed to ensure the integrity of any cap, final cover, or other containment system.
- (F) CAMUs used for storage or treatment only are CAMUs in which wastes will not remain after closure. Such CAMUs shall be designated in accordance with all of the requirements of this rule, except as follows:
 - (1) CAMUs that are used for storage or treatment only and that operate in accordance with the time limits established in the staging pile regulations at paragraphs (D)(1)(c), (H), and (I) of rule 3745-57-74 of the Administrative Code are subject to the requirements for staging piles at paragraphs (D)(1)(a), (D)(1)(b), (D)(2), (E), (F), (J), and (K) of rule 3745-57-74 of the Administrative Code in lieu of the performance standards and requirements for CAMUs in paragraphs (C) and (E)(3) to (E)(6) of this rule.
 - (2) CAMUs that are used for storage or treatment only and that do not operate in accordance with the time limits established in the staging pile regulations at paragraphs (D)(1)(c), (H), and (I) of rule



3745-57-74 of the Administrative Code:

(a) Shall operate in accordance with a time limit, established by the director, that is no longer than necessary to achieve a timely remedy selected for the waste.

(b) Are subject to the requirements for staging piles at paragraphs (D)(1)(a), (D)(1)(b), (D)(2), (E), (F), (J), and (K) of rule 3745-57-74 of the Administrative Code in lieu of the performance standards and requirements for CAMUs in paragraphs (C), (E)(4), and (E)(6) of this rule.

(G) CAMUs into which wastes are placed where all wastes have constituent levels at or below remedial levels or goals applicable to the site do not have to comply with the requirements for liners at paragraph (E)(3)(a) of this rule, caps at paragraph (E)(6)(d) of this rule, ground water monitoring requirements at paragraph (E)(5) of this rule or, for treatment or storage-only CAMUs, the design standards at paragraph (F) of this rule.

(H) The director will provide public notice and a reasonable opportunity for public comment before designating a CAMU. Such notice shall include the rationale for any proposed adjustments under paragraph (E)(4)(e) of this rule to the treatment standards in paragraph (E)(4)(d) of this rule.

(I) Notwithstanding any other provision of this rule, the director may impose additional requirements as necessary to protect human health and the environment.

(J) Incorporation of a CAMU into an existing permit shall be approved by the director according to the procedures for permit modifications in rule 3745-50-51 of the Administrative Code.

(K) The designation of a CAMU does not change Ohio EPA's existing authority to address clean-up levels, media-specific points of compliance to be applied to remediation at a facility, or other remedy selection decisions.

[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."]