

3745-51-01 **Purpose and scope of Chapter 3745-51 of the Administrative Code.**

(A) Chapter 3745-51 of the Administrative Code identifies those wastes which are subject to regulation as hazardous wastes under Chapters 3745-50, 3745-52, 3745-53, 3745-54 to 3745-57, 3745-65 to 3745-69, 3745-205, 3745-256, and 3745-270 of the Administrative Code, and which are subject to the requirement to notify Ohio EPA or U.S. EPA of regulated waste activity. Chapter 3745-51 of the Administrative Code includes ~~the following~~:

- (1) Rules 3745-51-01 to 3745-51-09 of the Administrative Code define the terms "waste" and "hazardous waste," identify those wastes which are excluded from regulation under Chapters 3745-52, 3745-53, 3745-54 to 3745-57, 3745-65 to 3745-69, 3745-205, 3745-256, 3745-266, 3745-270, and rules 374-50-40 to 3745-50-235 of the Administrative Code, and ~~establishes~~establish special management requirements for hazardous waste produced by very small quantity generators and hazardous waste which is recycled.
- (2) Rules 3745-51-10 to 3745-51-11 of the Administrative Code provide the criteria used to identify characteristics of hazardous waste and to list particular hazardous wastes.
- (3) Rules 3745-51-20 to 3745-51-24 of the Administrative Code identify characteristics of hazardous waste.
- (4) Rules 3745-51-30 to 3745-51-33 of the Administrative Code list particular hazardous wastes. ~~Rule 3745-51-35 of the Administrative Code lists certain hazardous wastes which are deleted from the list following equipment cleaning and replacement.~~

~~(B) Scope of Chapter 3745-51 of the Administrative Code.~~

- (1) The definition of "waste" in Chapter 3745-51 of the Administrative Code applies only to wastes that are also hazardous for purposes of the regulations adopted pursuant to section 3734.12 of the Revised Code. For example, the definition does not apply to materials (such as non-hazardous scrap, paper, textiles, or rubber) that are not otherwise hazardous wastes and that are recycled.
- (2) A material which is not defined as a "waste" in Chapter 3745-51 of the Administrative Code, or is not a hazardous waste identified or listed in Chapter 3745-51 of the Administrative Code, still may ~~still~~ be construction and demolitions debris, solid waste, infectious waste, hazardous waste, industrial waste, or other waste for purposes of Chapters 3714., 3734., and 6111. of the Revised Code if:

- (a) In the case of Chapters 3714., 3734. and 6111. of the Revised Code, the director has reason to believe that the material may be "construction and demolition debris" as defined in section 3714.01 of the Revised Code, "solid waste" or "hazardous waste" as defined in section 3734.01 of the Revised Code, or "industrial waste" or "other waste" as defined in section 6111.01 of the Revised Code; or
- (b) ~~[Reserved.]~~ In the case of Chapter 6111. of the Revised Code, the statutory elements are established.

(C) For purposes of rules 3745-51-02 and 3745-51-06 of the Administrative Code:

- (1) A "spent material" is any material that has been used and as a result of contamination can no longer serve the purpose for which the material was produced without processing.
- (2) "Sludge" has the same meaning as in rule 3745-50-10 of the Administrative Code.
- (3) A "by-product" is a material that is not one of the primary products of a production process and is not solely or separately produced by the production process. Examples are process residues such as slags or distillation column bottoms. By-product does not include a co-product that is produced for the general public's use and is ordinarily used in the form the co-product is produced by the process.
- (4) A material is "reclaimed" if the material is processed to recover a usable product, or if the material is regenerated. Examples are recovery of lead values from spent batteries and regeneration of spent solvents. In addition, for purposes of paragraphs (A)(23) and (A)(24) of rule 3745-51-04 of the Administrative Code, smelting, melting, and refining furnaces are considered to be solely engaged in metals reclamation if the metal recovery from the hazardous secondary materials meets the same requirements as those specified for metals recovery from hazardous waste in paragraphs (D)(1) to (D)(3) of rule 3745-266-100 of the Administrative Code, and if the residuals meet the requirements specified in rule 3745-266-112 of the Administrative Code.
- (5) A material is used or reused if the material is either ~~of the following:~~
- (a) Employed as an ingredient (including use as an intermediate) in an industrial process to make a product (for example, distillation bottoms from one process used as feedstock in another process). However, a material ~~shall~~will not satisfy this condition if distinct components of the material are recovered as separate end products (as when metals are recovered from metal-containing secondary materials); or

- (b) Employed in a particular function or application as an effective substitute for a commercial product (for example, spent pickle liquor used as phosphorous precipitant and sludge conditioner in wastewater treatment).
- (6) "Scrap metal" is bits and pieces of metal parts (e.g., bars, turnings, rods, sheets, wire) or metal pieces that may be combined together with bolts or soldering (e.g., radiators, scrap automobiles, railroad box cars), which when worn or superfluous can be recycled.
- (7) A material is "recycled" if the material is used, reused, or reclaimed.
- (8) A material is "accumulated speculatively" if the material is accumulated before being recycled. A material is not accumulated speculatively, however, if the person accumulating the material can show that the material is potentially recyclable and has a feasible means of being recycled; and that during the calendar year commencing January first, the amount of material that is recycled, or transferred to a different site for recycling, equals at least seventy-five per cent by weight or volume of the amount of that material accumulated at the beginning of the calendar year. Materials shall be placed in a storage unit with a label indicating the first date that the material began to be accumulated. If placing a label on the storage unit is not practicable, the accumulation period shall be documented through an inventory log or other appropriate method. In calculating the percentage of turnover, the seventy-five per cent requirement is to be applied to ~~materials~~ each material of the same type (e.g., slags from a single smelting process) that is recycled in the same way (i.e., from which the same material is recovered or that is used in the same way). Materials ~~accumulated~~ accumulating in units that would be exempt from regulation under paragraph (C) of rule 3745-51-04 of the Administrative Code ~~shall~~ are not to be included in making the calculation. Materials that are already defined as "wastes" also ~~shall~~ are not to be included in making the calculation. Materials are no longer in this category once the materials are removed from accumulation for recycling.
- (9) "Excluded scrap metal" is processed scrap metal, unprocessed home scrap metal, and unprocessed prompt scrap metal.
- (10) "Processed scrap metal" is scrap metal which has been manually or physically altered either to separate the scrap metal into distinct materials to enhance economic value, or to improve the handling of materials. Processed scrap metal includes, but is not limited to, scrap metal which has been baled, shredded, sheared, chopped, crushed, flattened, cut, melted, or separated by metal type (i.e., sorted), and fines, drosses, and related materials which have been agglomerated.

[Comment: Shredded circuit boards being sent for recycling are not considered processed scrap metal. Such materials are covered under the exclusion from the definition of "waste" for shredded circuit boards being recycled in paragraph (A)(14) of rule 3745-51-04 of the Administrative Code.]

- (11) "Home scrap metal" is scrap metal as generated by steel mills, foundries, and refineries, such as turnings, cuttings, punchings, and borings.
- (12) "Prompt scrap metal" is scrap metal as generated by the metal working or metal fabrication industries, and includes such scrap metal as turnings, cuttings, punchings, and borings. Prompt scrap is also known as industrial or new scrap metal.

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3745-51-02

Definition of waste.

(A)

(1) A "waste" is any discarded material that is not excluded by paragraph (A) of rule 3745-51-04 of the Administrative Code or that is not excluded by variance granted under rules 3745-50-23 and 3745-50-24 of the Administrative Code or that is not excluded by a non-waste determination under rules 3745-50-23 and 3745-50-15 of the Administrative Code.

(2) A "discarded material" is any material which is:

(a) Abandoned, as explained in paragraph (B) of this rule; or

(b) Recycled, as explained in paragraph (C) of this rule; or

(c) Considered inherently waste-like, as explained in paragraph (D) of this rule;
or

(d) A military munition identified as a waste in rule 3745-266-202 of the Administrative Code.

(B) Materials are waste if the materials are abandoned by being:

(1) Disposed of; or

(2) Burned or incinerated; or

(3) Accumulated, stored, or treated (but not recycled) before or in lieu of being abandoned by being disposed, burned, or incinerated; or

(4) ~~Reserved.~~ Sham recycled, as explained in paragraph (G) of this rule.

(C) Materials are wastes if the materials are recycled- or accumulated, stored, or treated before recycling,- as specified in paragraphs (C)(1) to (C)(4) of this rule.

(1) Used in a manner constituting disposal.

(a) Materials noted with an asterisk in column 1 of the table in this rule are wastes when the materials are:

(i) Applied to or placed on the land in a manner that constitutes disposal;
or

- (ii) Used to produce products that are applied to or placed on the land or are otherwise contained in products that are applied to or placed on the land (in which cases the product remains a waste).
 - (b) However, commercial chemical products listed in rule 3745-51-33 of the Administrative Code are not wastes if the products are applied to the land and that is the ordinary manner of use.
 - (2) Burning for energy recovery.
 - (a) Materials noted with an asterisk in column 2 of the table in this rule are wastes when the materials are:
 - (i) Burned to recover energy; or
 - (ii) Used to produce a fuel, or are otherwise contained in fuels (in which cases the fuel remains a waste).
 - (b) However, commercial chemical products listed in rule 3745-51-33 of the Administrative Code are not wastes if the commercial chemical products are fuels.
 - (3) Reclaimed. Materials noted with an asterisk in column 3 of the table in this rule are wastes when reclaimed [except as provided in paragraph (A)(17), (A)(23), (A)(24), or (A)(27) of rule 3745-51-04 of the Administrative Code]. Materials noted with a dash in column 3 of the table in this rule are not wastes when reclaimed.
 - (4) Accumulated speculatively. Materials noted with an asterisk in column 4 of the table in this rule are wastes when accumulated speculatively.
- (D) Inherently waste-like materials. The following materials are wastes when the materials are recycled in any manner:
- (1) Hazardous wastes numbers F020, F021 (unless used as an ingredient to make a product at the site of generation), F022, F023, F026, and F028.
 - (2) Secondary materials fed to a halogen acid furnace that exhibit a characteristic of a hazardous waste, as described in rules 3745-51-20 to 3745-51-24 of the Administrative Code, or are listed as a hazardous waste, as described in rules 3745-51-30 to 3745-51-35 of the Administrative Code, except for brominated material that meets the following criteria:

- (a) The material shall contain a bromine concentration of at least forty-five per cent; and
 - (b) The material shall contain less than a total of one per cent of toxic organic compounds listed in the appendix to rule 3745-51-11 of the Administrative Code; and
 - (c) The material is processed continually on-site in the halogen acid furnace via direct conveyance (hard piping).
- (3) The director will use the following criteria to add wastes to the list of inherently waste-like materials:
- (a)
 - (i) The materials are ordinarily disposed of, burned, or incinerated; or
 - (ii) The materials contain toxic constituents listed in the appendix to rule 3745-51-11 of the Administrative Code and these constituents are not ordinarily found in raw materials or products for which the materials substitute (or are found in raw materials or products in smaller concentrations) and are not used or reused during the recycling process; and
 - (b) The materials may pose a substantial hazard to human health and the environment when recycled.
- (E) Materials that are not waste when recycled.
- (1) Materials are not wastes when the materials can be shown to be recycled by being:
- (a) Used or reused as ingredients in an industrial process to make a product, provided the materials are not being reclaimed; or
 - (b) Used or reused as effective substitutes for commercial products; or
 - (c) Returned to the original process from which the materials were generated, without first being reclaimed or land disposed. The materials shall be returned as a substitute for feedstock materials. In cases where the original process to which the material is returned is a secondary process, the materials shall be managed such that there is no placement on the land. In cases where the materials are generated and reclaimed within the primary mineral processing industry, the conditions of the exclusion found in

paragraph (A)(17) of rule 3745-51-04 of the Administrative Code apply rather than this provision.

- (2) The following materials are wastes, even if the recycling involves use, reuse, or return to the original process [as described in paragraphs (E)(1)(a) to (E)(1)(c) of this rule]:
- (a) Materials used in a manner constituting disposal, or used to produce products that are applied to the land; or
 - (b) Materials burned for energy recovery, used to produce a fuel, or contained in fuels; or
 - (c) Materials accumulated speculatively; or
 - (d) Materials listed in paragraphs (D)(1) and (D)(2) of this rule.
- (F) Documentation of claims that materials are not wastes or are conditionally exempt from regulation. Respondents in actions to enforce regulations adopted under Chapter 3734. of the Revised Code who raise a claim that a certain material is not a waste, or is conditionally exempt from regulation, shall demonstrate that there is a known market or disposition for the material and that the respondent meets the terms of the exclusion or exemption. In doing so, the respondent shall provide appropriate documentation (such as contracts showing that a second person uses the material as an ingredient in a production process) to demonstrate that the material is not a waste, or is exempt from regulation. In addition, owners or operators of facilities claiming that the facilities actually are recycling materials shall show that the facilities have the necessary equipment to do so.

Table

	Use Constituting Disposal [paragraph (C)(1) of rule 3745-51-02 of the Administrative Code]	Energy Recovery/Fuel [paragraph (C)(2) of rule 3745-51-02 of the Administrative Code]	Reclamation [paragraph (C)(3) of rule 3745-51-02 of the Administrative Code] [except as provided in paragraph (A)(17), <u>(A)(23)</u> , <u>(A)(24)</u> , or <u>(A)(27)</u> of rule 3745-51-04 of the Administrative Code for processing secondary materials]	Speculative Accumulation [paragraph (C)(4) of rule 3745-51-02 of the Administrative Code]
	1	2	3	4
Spent materials	(*)	(*)	(*)	(*)
Sludges (listed in rule 3745-51-31 or 3745-51-32 of the Administrative Code)	(*)	(*)	(*)	(*)
Sludges exhibiting a characteristic of hazardous waste	(*)	(*)	--	(*)
By-products (listed in rule 3745-51-31 or 3745-51-32 of the Administrative Code)	(*)	(*)	(*)	(*)

By-products exhibiting a characteristic of hazardous waste	(*)	(*)	--	(*)
Commercial chemical products listed in rule 3745-51-33 of the Administrative Code	(*)	(*)	--	--
Scrap metal that is not excluded scrap metal [see paragraph (A)(13) of rule 3745-51-04 of the Administrative Code]	(*)	(*)	(*)	(*)
Note: The terms "spent material," "sludge," "by-product," "scrap metal," and "excluded scrap metal" are defined in rule 3745-51-01 of the Administrative Code.				

(G) ~~Reserved.~~ Sham recycling. A hazardous secondary material found to be sham recycled is considered discarded and a waste. Sham recycling is recycling that is not legitimate recycling, as defined in rule 3745-50-17 of the Administrative Code.

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3745-51-03

Definition of hazardous waste.

(A) A "waste," as defined in rule 3745-51-02 of the Administrative Code, is a "hazardous waste" if:

(1) The waste is not excluded from regulation as a hazardous waste under paragraph (B) of rule 3745-51-04 of the Administrative Code; and

(2) The waste meets any of the following criteria:

(a) The waste exhibits any of the characteristics of hazardous waste identified in rules 3745-51-20 to 3745-51-24 of the Administrative Code. However, any mixture of a waste from the extraction, beneficiation, and processing of ores and minerals excluded under paragraph (B)(7) of rule 3745-51-04 of the Administrative Code and any other waste exhibiting a characteristic of hazardous waste under rules 3745-51-20 to 3745-51-24 of the Administrative Code is a hazardous waste only if such mixture exhibits a characteristic that would not have been exhibited by the excluded waste alone if such mixture had not occurred, or if such mixture continues to exhibit any of the characteristics exhibited by the non-excluded wastes prior to mixture. Further, for the purposes of applying the toxicity characteristic leaching procedure to such mixtures, the mixture is also a hazardous waste if such mixture exceeds the maximum concentration for any contaminant listed in the table in rule 3745-51-24 of the Administrative Code that would not have been exceeded by the excluded waste alone if the mixture had not occurred or if such mixture continues to exceed the maximum concentration for any contaminant exceeded by the nonexempt waste prior to mixture.

(b) The waste is listed in rules 3745-51-30 to 3745-51-35 of the Administrative Code and has not been excluded from the lists in rules 3745-51-30 to 3745-51-35 of the Administrative Code under 40 CFR 260.20 and 40 CFR 260.22.

~~(c) The waste is a mixture of hazardous wastes as described by paragraphs (A)(2)(a) to (A)(2)(e) of this rule and "source material," "special nuclear material," or "by-product material," as defined by the Atomic Energy Act of 1954, as amended through the date specified in rule 3745-50-11 of the Administrative Code, 42 U.S.C. 2011, or other radionuclides. However, only the hazardous components of the mixture are subject to regulation for purposes of Chapter 3745-51 of the Administrative Code.~~

~~{Comment: See paragraph (H) of this rule for possible exemptions for such mixed wastes.}~~

~~(d)~~(c) The waste is a mixture of waste and one or more hazardous wastes listed in rules 3745-51-30 to 3745-51-35 of the Administrative Code and has not been excluded from paragraph (A)(2) of this rule under 40 CFR 260.20 and 40 CFR 260.22, ~~paragraphs (G)(1) to (G)(4)~~paragraph (G) of this rule, or ~~paragraphs (H)(1) to (H)(3)~~paragraph (H) of this rule. However, the following mixtures of wastes and hazardous wastes listed in rules 3745-51-30 to 3745-51-35 of the Administrative Code are not hazardous wastes [except by application of paragraph (A)(2)(a) or (A)(2)(b) of this rule] if the generator can demonstrate that the mixture consists of wastewater, the discharge of which is subject to regulation under either Section 402 or Section 307(b) of the Clean Water Act (CWA) (including wastewater at facilities which have eliminated the discharge of wastewater) and:

- (i) One or more of the following spent solvents listed in rule 3745-51-31 of the Administrative Code - carbon tetrachloride, tetrachloroethylene, trichloroethylene or the scrubber water derived-from the combustion of these spent solvents- provided that the maximum total weekly usage of these solvents (other than the amounts that can be demonstrated not to be discharged to wastewater) divided by the average weekly flow of wastewater into the headworks of the facility's wastewater treatment or pretreatment system does not exceed one part per million; or the total measured concentration of these solvents entering the headworks of the facility's wastewater treatment system (at facilities subject to regulation under the Clean Air Act (CAA) at 40 CFR Part 60, 40 CFR Part 61, or 40 CFR Part 63, or at facilities subject to an enforceable limit in a federal operating permit that minimizes fugitive emissions), does not exceed one part per million on an average weekly basis. Any facility that uses benzene as a solvent and claims this exemption shall use an aerated biological wastewater treatment system and shall use only lined surface impoundments or tanks prior to secondary clarification in the wastewater treatment system. Facilities that choose to measure concentration levels shall file a copy of the facility's sampling and analysis plan with the regional administrator, or the director, as the context requires. A facility shall file a copy of a revised sampling and analysis plan only if the initial plan is rendered inaccurate by changes in the facility's operations. The sampling and analysis plan shall include the monitoring point location (headworks), the sampling frequency and methodology, and a list of constituents to be monitored. A facility is eligible for the direct monitoring

option once the facility receives confirmation that the sampling and analysis plan has been received by the director. The director may reject the sampling and analysis plan if the director finds that the sampling and analysis plan fails to include the information required in this paragraph, or if the plan parameters would not enable the facility to accurately calculate the weekly average concentration of these chemicals. If the director rejects the sampling and analysis plan, or if the director finds that the facility is not following the sampling and analysis plan, the director shall notify the facility to cease the use of the direct monitoring option until such time as the bases for rejection are corrected; or

- (ii) One or more of the following spent solvents listed in rule 3745-51-31 of the Administrative Code - methylene chloride, 1,1,1-trichloroethane, chlorobenzene, o-dichlorobenzene, cresols, cresylic acid, nitrobenzene, toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, spent chlorofluorocarbon solvents, 2-ethoxyethanol, or the scrubber waters derived-from the combustion of these spent solvents - provided that the maximum total weekly usage of these solvents (other than the amounts that can be demonstrated not to be discharged to wastewater) divided by the average weekly flow of wastewater into the headworks of the facility's wastewater treatment or pretreatment system does not exceed twenty-five parts per million, or the total measured concentration of these solvents entering the headworks of the facility's wastewater treatment system (at facilities subject to regulation under the CAA at 40 CFR Part 60, 40 CFR Part 61, or 40 CFR Part 63, or at facilities subject to an enforceable limit in a federal operating permit that minimizes fugitive emissions), does not exceed twenty-five parts per million on an average weekly basis. Facilities that choose to measure concentration levels shall file a copy of the facility's sampling and analysis plan with the regional administrator, or the director, as the context requires. A facility shall file a copy of a revised sampling and analysis plan only if the initial plan is rendered inaccurate by changes in the facility's operations. The sampling and analysis plan shall include the monitoring point location (headworks), the sampling frequency and methodology, and a list of constituents to be monitored. A facility is eligible for the direct monitoring option once the facility receives confirmation that the sampling and analysis plan has been received by the director. The director may reject the sampling and analysis plan if the director finds that the sampling and analysis

plan fails to include the information required in this paragraph, or if the plan parameters would not enable the facility to accurately calculate the weekly average concentration of these chemicals. If the director rejects the sampling and analysis plan, or if the director finds that the facility is not following the sampling and analysis plan, the director shall notify the facility to cease the use of the direct monitoring option until such time as the bases for rejection are corrected; or

- (iii) One of the following wastes listed in rule 3745-51-32 of the Administrative Code, provided that the wastes are discharged to the refinery oil recovery sewer before primary oil or water or solids separation - heat exchanger bundle cleaning sludge from the petroleum refining industry (EPA hazardous waste number K050), crude oil storage tank sediment from petroleum refining operations (EPA hazardous waste number K169), clarified slurry oil tank sediment or in-line filter solids or separation solids from petroleum refining operations (EPA hazardous waste number K170), spent hydrotreating catalyst (EPA hazardous waste number K171), and spent hydrorefining catalyst (EPA hazardous waste number K172); or

- (iv) A discarded hazardous waste, commercial chemical product, or chemical intermediate listed in rules 3745-51-31 to 3745-51-33 of the Administrative Code, arising from de minimis losses of these materials. For purposes of this paragraph, "de minimis losses" are inadvertent releases to a wastewater treatment system, including those from normal material handling operations (e.g., spills from the unloading or transfer of materials from bins or other containers, leaks from pipes, valves, or other devices used to transfer materials); minor leaks of process equipment, storage tanks, or containers; leaks from well-maintained pump packings and seals; sample purgings; relief device discharges; discharges from safety showers and rinsing and cleaning of personal safety equipment; and rinsate from empty containers or from containers that are rendered empty by that rinsing. Any manufacturing facility that claims an exemption for de minimis quantities of wastes listed in rules 3745-51-31 to 3745-51-32 of the Administrative Code, or any non-manufacturing facility that claims an exemption for de minimis quantities of wastes listed in rules 3745-51-30 to 3745-51-35 of the Administrative Code, either shall have eliminated the discharge of wastewaters or shall have included in

the facility's CWA permit application or submittal to the facility's pretreatment control authority the constituents for which each waste was listed (in the appendix to rule 3745-51-30 of the Administrative Code); and the constituents in the table "Treatment Standards for Hazardous Wastes" in rule 3745-270-40 of the Administrative Code for which each waste has a treatment standard (i.e., land disposal restriction constituents). A facility is eligible to claim the exemption once the permit writer or control authority has been notified of possible de minimis releases via the CWA permit application or the pretreatment control authority submittal. A copy of the CWA permit application or the submittal to the pretreatment control authority shall be placed in the facility's files; or

- (v) Wastewater resulting from laboratory operations containing toxic (T) wastes listed in rules 3745-51-30 to 3745-51-35 of the Administrative Code, provided that the annualized average flow of laboratory wastewater does not exceed one per cent of total wastewater flow into the headworks of the facility's wastewater treatment or pretreatment system, or provided the wastes' combined annualized average concentration does not exceed one part per million in the headworks of the facility's wastewater treatment or pretreatment facility. Toxic (T) wastes used in laboratories that are demonstrated not to be discharged to wastewater are not to be included in this calculation; or
- (vi) One or more of the following wastes listed in rule 3745-51-32 of the Administrative Code - wastewaters from the production of carbamates and carbamoyl oximes (EPA hazardous waste number K157) - provided that the maximum weekly usage of formaldehyde, methyl chloride, methylene chloride, and triethylamine (including all amounts that cannot be demonstrated to be reacted in the process, destroyed through treatment, or recovered, i.e., what is discharged or volatilized) divided by the average weekly flow of process wastewater prior to any dilutions into the headworks of the facility's wastewater treatment system does not exceed a total of five parts per million by weight; or the total measured concentration of these chemicals entering the headworks of the facility's wastewater treatment system (at facilities subject to regulation under the CAA at 40 CFR Part 60, 40 CFR Part 61, or 40 CFR Part 63, or at facilities subject to an enforceable limit in a federal operating permit that minimizes fugitive emissions), does not exceed five parts per million on an average weekly

basis. Facilities that choose to measure concentration levels shall file a copy of the facility's sampling and analysis plan with the regional administrator, or the director, as the context requires. A facility shall file a copy of a revised sampling and analysis plan only if the initial plan is rendered inaccurate by changes in the facility's operations. The sampling and analysis plan shall include the monitoring point location (headworks), the sampling frequency and methodology, and a list of constituents to be monitored. A facility is eligible for the direct monitoring option once the facility receives confirmation that the sampling and analysis plan has been received by the director. The director may reject the sampling and analysis plan if the director finds that the sampling and analysis plan fails to include the information required in this paragraph, or if the plan parameters would not enable the facility to accurately calculate the weekly average concentration of these chemicals. If the director rejects the sampling and analysis plan, or if the director finds that the facility is not following the sampling and analysis plan, the director shall notify the facility to cease the use of the direct monitoring option until such time as the bases for rejection are corrected; or

- (vii) Wastewaters derived from the treatment of one or more of the following wastes listed in rule 3745-51-32 of the Administrative Code- organic waste (including heavy ends, still bottoms, light ends, spent solvents, filtrates, and decantates) from the production of carbamates and carbamoyl oximes (EPA hazardous waste number K156) - provided that the maximum concentration of formaldehyde, methyl chloride, methylene chloride, and triethylamine prior to any dilutions into the headworks of the facility's wastewater treatment system does not exceed a total of five milligrams per liter or the total measured concentration of these chemicals entering the headworks of the facility's wastewater treatment system (at facilities subject to regulation under the CAA at 40 CFR Part 60, 40 CFR Part 61, or 40 CFR Part 63, or at facilities subject to an enforceable limit in a federal operating permit that minimizes fugitive emissions), does not exceed five milligrams per liter on an average weekly basis. Facilities that choose to measure concentration levels shall file a copy of the facility's sampling and analysis plan with the regional administrator, or the director, as the context requires. A facility shall file a copy of a revised sampling and analysis plan only if the initial plan is rendered inaccurate by changes in the facility's operations. The sampling and analysis

plan shall include the monitoring point location (headworks), the sampling frequency and methodology, and a list of constituents to be monitored. A facility is eligible for the direct monitoring option once the facility receives confirmation that the sampling and analysis plan has been received by the director. The director may reject the sampling and analysis plan if the director finds that the sampling and analysis plan fails to include the information required in this paragraph, or if the plan parameters would not enable the facility to accurately calculate the weekly average concentration of these chemicals. If the director rejects the sampling and analysis plan, or if the director finds that the facility is not following the sampling and analysis plan, the director shall notify the facility to cease the use of the direct monitoring option until such time as the bases for rejection are corrected; ~~or,~~

~~(e)~~(d) Rebuttable presumption for used oil. Used oil containing more than one thousand parts per million total halogens is presumed to be a hazardous waste because the used oil has been mixed with halogenated hazardous waste listed in rules 3745-51-30 to 3745-51-35 of the Administrative Code. Persons may rebut this presumption by demonstrating that the used oil does not contain hazardous waste (for example, to show that the used oil does not contain significant concentrations of halogenated hazardous constituents listed in the appendix to rule 3745-51-11 of the Administrative Code).

- (i) The rebuttable presumption does not apply to metalworking oils or fluids containing chlorinated paraffins, if they are processed, through a tolling agreement, to reclaim metalworking oils or fluids. The presumption does apply to metalworking oils or fluids if such oils or fluids are recycled in any other manner, or disposed.
- (ii) The rebuttable presumption does not apply to used oils contaminated with chlorofluorocarbons (CFCs) removed from refrigeration units where the CFCs are destined for reclamation. The rebuttable presumption does apply to used oils contaminated with CFCs that have been mixed with used oil from sources other than refrigeration units.

(B) A waste which is not excluded from regulation under paragraph (A)(1) of this rule becomes a hazardous waste when any of the following events occur:

- (1) In the case of a waste listed in rules 3745-51-30 to 3745-51-35 of the Administrative Code, when the waste first meets the listing description in rules 3745-51-30 to 3745-51-35 of the Administrative Code.
- (2) In the case of a mixture of waste and one or more listed hazardous wastes, when a hazardous waste listed in rules 3745-51-30 to 3745-51-35 of the Administrative Code is first added to the waste.
- (3) In the case of any other waste (including a waste mixture), when the waste exhibits any of the characteristics identified in rules 3745-51-20 to 3745-51-24 of the Administrative Code.

(C) Unless and until a hazardous waste meets the criteria of paragraph (D) of this rule:

- (1) A hazardous waste will remain a hazardous waste.
- (2) ~~Regarding waste generated from the treatment, storage, or disposal of a hazardous waste:~~
 - (a) Except as otherwise provided in paragraph (C)(2)(b), ~~(G)(1) to (G)(4)(G)~~, or ~~(H)(1) to (H)(3)(H)~~ of this rule, any waste generated from the treatment, storage, or disposal of a hazardous waste, including any sludge, spill residue, ash, emission control dust, or leachate (but not including precipitation run-off) is a hazardous waste. (However, materials that are reclaimed from wastes and that are used beneficially are not wastes and hence are not hazardous wastes under this provision unless the reclaimed material is burned for energy recovery or used in a manner constituting disposal.)
 - (b) The following wastes are not hazardous even though the wastes are generated from the treatment, storage, or disposal of a hazardous waste, unless the wastes exhibit one or more of the characteristics of hazardous waste:
 - (i) Waste pickle liquor sludge generated by lime stabilization of spent pickle liquor from the iron and steel industry (SIC codes 331X and 332X).
 - (ii) Waste from burning any of the materials exempted from regulation by paragraphs (A)(3)(c) and (A)(3)(d) of rule 3745-51-06 of the Administrative Code.
 - (iii) ~~Regarding HTMR:~~

(a) Nonwastewater residues, such as slag, resulting from high temperature metals recovery (HTMR) processing of K061, K062, or F006 waste, in units defined as rotary kilns, flame reactors, electric furnaces, plasma arc furnaces, slag reactors, rotary hearth furnace or electric furnace combinations, or industrial furnaces [as defined in subparagraphs (f), (g), and (m) of "industrial furnace" in rule 3745-50-10 of the Administrative Code], that are disposed in licensed solid waste landfills, provided that these residues meet the generic exclusion levels identified in this paragraph for all constituents, and exhibit no characteristics of hazardous waste. Testing requirements shall be incorporated in a facility's waste analysis plan or a generator's self-implementing waste analysis plan. At a minimum, composite samples of residues shall be collected and analyzed quarterly or when the process or operation generating the waste changes. Persons claiming this exclusion in an enforcement action will have the burden of proving by clear and convincing evidence that the material meets all the exclusion requirements.

Table	
Constituent	Maximum for any single composite sample - TCLP (mg/L)
Generic exclusion levels for K061 and K062 nonwastewater HTMR residues	
Antimony	0.1
Arsenic	0.5
Barium	7.6
Beryllium	0.01
Cadmium	0.05
Chromium (total)	0.33
Lead	0.15
Mercury	0.009

Nickel	1.0
Selenium	0.16
Silver	0.3
Thallium	0.02
Zinc	70.0
Generic exclusion levels for F006 nonwastewater HTMR residues	
Antimony	0.1
Arsenic	0.5
Barium	7.6
Beryllium	0.01
Cadmium	0.05
Chromium (total)	0.33
Cyanide (total) (mg/kg)	1.8
Lead	0.15
Mercury	0.009
Nickel	1.0
Selenium	0.16
Silver	0.3
Thallium	0.02
Zinc	70.0

(b) A one-time notification and certification shall be placed in the facility's files and sent to the director for K061, K062, or F006 HTMR residues that meet the generic exclusion levels for all constituents and do not exhibit any characteristics that are sent to licensed solid waste landfills. The notification and certification that is placed in the generator's or treater's files

shall be updated if the process or operation generating the waste changes or if the licensed solid waste landfill receiving the waste changes. However, the generator or treater need only notify the director on an annual basis if such changes occur. Such notification and certification should be sent to the director by the end of the calendar year, but no later than December thirty-first. The notification shall include the following information:

- (i) The name and address of the licensed solid waste landfill receiving the waste shipments;
- (ii) The EPA hazardous waste numbers and treatability groups at the initial point of generation; and
- (iii) The treatment standards in Chapter 3745-270 of the Administrative Code applicable to the waste at the initial point of generation.
- (iv) The certification shall be signed by an authorized representative and shall state as follows:

"I certify under penalty of law that the generic exclusion levels for all constituents have been met without impermissible dilution and that no ~~characteristics~~ characteristic of hazardous waste is exhibited. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

- (iv) Biological treatment sludge from the treatment of one of the following wastes listed in rule 3745-51-32 of the Administrative Code - organic waste (including heavy ends, still bottoms, light ends, spent solvents, filtrates, and decantates) from the production of carbamates and carbamoyl oximes (EPA hazardous waste number K156), and wastewaters from the production of carbamates and carbamoyl oximes (EPA hazardous waste number K157).
- (v) Catalyst inert support media separated from one of the following wastes listed in rule 3745-51-32 of the Administrative Code - spent hydrotreating catalyst (EPA hazardous waste number K171), and spent hydrorefining catalyst (EPA hazardous waste number K172).

(D) Any waste described in paragraph (C) of this rule is not a hazardous waste if the waste meets the following criteria:

- (1) In the case of any waste, the waste does not exhibit any of the characteristics of hazardous waste identified in rules 3745-51-20 to 3745-51-24 of the Administrative Code. However, wastes that exhibit a characteristic at the point of generation may still be subject to Chapter 3745-270 of the Administrative Code, even if the wastes no longer exhibit a characteristic at the point of land disposal.)
- (2) In the case of a waste which is listed in rules 3745-51-30 to 3745-51-35 of the Administrative Code, or contains a hazardous waste listed in rules 3745-51-30 to 3745-51-35 of the Administrative Code, or is derived from a hazardous waste listed in rules 3745-51-30 to 3745-51-35 of the Administrative Code, the hazardous waste also has been excluded from ~~paragraphs~~ paragraph (C) to ~~(E)~~ ~~(2)(b)(v)~~ of this rule pursuant to 40 CFR 260.20 and 40 CFR 260.22.

(E) [Reserved.]

(F) Notwithstanding paragraphs (A) to (D) of this rule and provided the "debris" as defined in rule 3745-270-02 of the Administrative Code does not exhibit a characteristic identified in rules 3745-51-20 to 3745-51-24 of the Administrative Code, the following materials are not subject to regulation under Chapters 3745-50, 3745-51, 3745-52, 3745-53, 3745-54 to 3745-57, 3745-65 to 3745-69, 3745-205, 3745-256, 3745-266, or 3745-270 of the Administrative Code:

- (1) "Hazardous debris" as defined in rule 3745-27-02 of the Administrative Code that has been treated using one of the required extraction or destruction technologies identified in the table in rule 3745-270-45 of the Administrative Code. Persons claiming this exclusion in an enforcement action will have the burden of proving by clear and convincing evidence that the material meets all the exclusion requirements; or
- (2) "Debris" as defined in rule 3745-270-02 of the Administrative Code that the director, considering the extent of contamination, has determined is no longer contaminated with hazardous waste.

(G) ~~Regarding characteristic mixtures:~~

- (1) A hazardous waste that is listed in rules 3745-51-30 to 3745-51-35 of the Administrative Code solely because the waste exhibits one or more characteristics of ignitability as identified in rule 3745-51-21 of the Administrative Code, characteristic of corrosivity as identified in rule

3745-51-22 of the Administrative Code, or characteristic of reactivity as identified in rule 3745-51-23 of the Administrative Code is not a hazardous waste, if the waste no longer exhibits any characteristic of hazardous waste identified in rules 3745-51-20 to 3745-51-24 of the Administrative Code.

(2) The exclusion described in paragraph (G)(1) of this rule also pertains to ~~of the following:~~

(a) Any mixture of a waste and a hazardous waste listed in rules 3745-51-30 to 3745-51-35 of the Administrative Code solely because the mixture exhibits the characteristic of ignitability, characteristic of corrosivity, or characteristic of reactivity as regulated under paragraph ~~(A)(2)(d)~~(A)(2)(c) of this rule; and

(b) Any waste generated from treating, storing, or disposing of a hazardous waste listed in rules 3745-51-30 to 3745-51-35 of the Administrative Code solely because the waste exhibits the characteristic of ignitability, characteristic of corrosivity, or characteristic of reactivity as regulated under paragraph (C)(2)(a) of this rule.

(3) Wastes excluded under this rule are subject to Chapter 3745-270 of the Administrative Code (as applicable), even if such wastes no longer exhibit a characteristic at the point of land disposal.

(4) Any mixture of a waste excluded from regulation under paragraph (B)(7) of rule 3745-51-04 of the Administrative Code and a hazardous waste listed in rules 3745-51-30 to 3745-51-35 of the Administrative Code solely because the mixture exhibits one or more of the characteristic of ignitability, characteristic of corrosivity, or characteristic of reactivity as regulated under paragraph ~~(A)(2)(d)~~(A)(2)(c) of this rule is not a hazardous waste, if the mixture no longer exhibits any characteristic of hazardous waste identified in rules 3745-51-20 to 3745-51-24 of the Administrative Code for which the hazardous waste listed in rules 3745-51-30 to 3745-51-35 of the Administrative Code was listed.

~~(H) Regarding radioactive mixed waste:~~

(1) Hazardous waste containing radioactive waste is no longer a hazardous waste when the waste meets the eligibility criteria and conditions of rules 3745-266-210 to 3745-266-335 of the Administrative Code ("eligible radioactive mixed waste").

(2) The exemption described in paragraph (H)(1) of this rule also pertains to ~~the following:~~

- (a) Any mixture of a waste and an eligible radioactive mixed waste: and
- (b) Any waste generated from treating, storing, or disposing of an eligible radioactive mixed waste.

(3) Waste exempted under this rule shall meet the eligibility criteria and specified conditions in paragraph (B) of rule 3745-266-220, ~~and~~ paragraph (C) of rule 3745-266-220 ~~of the Administrative Code~~ (for storage and treatment), ~~and in~~ rule 3745-266-310, and paragraph (A) of rule 3745-266-315 of the Administrative Code (for transportation and disposal). Waste that fails to satisfy these eligibility criteria and conditions is regulated as hazardous waste.

~~(I) The director will advise the public of changes to the lists of hazardous wastes in rule 3745-51-30 of the Administrative Code and of exclusions pursuant to 40 CFR 260.22.~~

[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."]

Effective: 10/23/2022
Five Year Review (FYR) Dates: 7/20/2022 and 07/20/2027

CERTIFIED ELECTRONICALLY

Certification

10/11/2022

Date

Promulgated Under: 119.03
Statutory Authority: 3734.12
Rule Amplifies: 3734.12
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12/30/1989, 02/11/1992, 02/14/1995, 09/02/1997,
10/20/1998, 12/07/2000, 03/13/2002, 12/07/2004,
02/16/2009, 09/05/2010, 03/24/2017

3745-51-04

Exclusions.

(A) Materials which are not wastes. The following materials are not wastes for the purpose of Chapter 3745-51 of the Administrative Code:

(1) Domestic sewage:

(a) Any mixture of domestic sewage and other wastes that passes through a sewer system to a publicly owned treatment works (POTW) for treatment, except as prohibited by rule 3745-266-505 of the Administrative Code and Clean Water Act requirements in paragraph (B)(1) of rule 3745-3-04 of the Administrative Code.

(b) As used in Chapter 3745-51 of the Administrative Code, "domestic sewage" means untreated sanitary wastes that pass through a sewer system.

(2) Industrial wastewater discharges that are point source discharges subject to regulation under Section 402 of the Clean Water Act.

[Comment: This exclusion applies only to the actual point source discharge. The exclusion does not exclude industrial wastewaters while the industrial wastewaters are being collected, stored, or treated before discharge, nor does the exclusion exclude sludges that are generated by industrial wastewater treatment.]

(3) Irrigation return flows.

(4) "Source material," "special nuclear material," or "by-product material" as defined by the Atomic Energy Act of 1954, ~~as amended through the date specified in rule 3745-50-11 of the Administrative Code, 42 U.S.C. 2011.~~

(5) Materials subjected to in-situ mining techniques which are not removed from the ground as part of the extraction process.

(6) Pulping liquors (i.e., black liquor) that are reclaimed in a pulping liquor recovery furnace and then reused in the pulping process, unless the pulping liquors are "accumulated speculatively" as described in paragraph (C)(8) of rule 3745-51-01 of the Administrative Code.

(7) Spent sulfuric acid used to produce virgin sulfuric acid, provided the spent sulfuric acid is not "accumulated speculatively" as described in paragraph (C)(8) of rule 3745-51-01 of the Administrative Code.

- (8) Secondary materials that are reclaimed and returned to the original process or processes in which the secondary materials were generated where the secondary materials are reused in the production process provided that all of the following:
- (a) Only tank storage is involved, and the entire process through completion of reclamation is closed by being entirely connected with pipes or other comparable enclosed means of conveyance.
 - (b) Reclamation does not involve controlled flame combustion (such as occurs in boilers, industrial furnaces, or incinerators).
 - (c) The secondary materials are never accumulated in such tanks for over twelve months without being reclaimed.
 - (d) The reclaimed material is not used to produce a fuel, or used to produce products that are used in a manner constituting disposal.
- (9) Wood preserving.
- (a) Spent wood preserving solutions that have been reclaimed and are reused for the original intended purpose.
 - (b) Wastewaters from the wood preserving process that have been reclaimed and are reused to treat wood.
 - (c) Prior to reuse, the wood preserving wastewaters and spent wood preserving solutions described in paragraphs (A)(9)(a) and (A)(9)(b) of this rule, so long as the wood preserving wastewaters and spent wood preserving solutions meet all of the following conditions:
 - (i) The wood preserving wastewaters and spent wood preserving solutions are reused on-site at water borne plants in the production process for the original intended purpose.
 - (ii) Prior to reuse, the wastewaters and spent wood preserving solutions are managed to prevent release to either land or ground water or both.
 - (iii) Any unit used to manage wastewaters or spent wood preserving solutions prior to reuse can be visually or otherwise determined to prevent such releases.
 - (iv) Any drip pad used to manage the wastewaters or spent wood preserving solutions prior to reuse complies with rules 3745-69-40

to 3745-69-45 of the Administrative Code, regardless of whether the owner or operator generates a total of less than one hundred kilograms of hazardous waste per month.

- (v) Prior to operating pursuant to this exclusion, the owner or operator prepares one-time notification stating that the owner or operator intends to claim the exclusion, giving the date on which the owner or operator intends to begin operating under the exclusion, and containing the following language:

"I have read rule 3745-51-04 of the Administrative Code establishing an exclusion for wood preserving wastewaters and spent wood preserving solutions and understand rule 3745-51-04 of the Administrative Code requires me to comply at all times with the conditions set out in the rule."

The owner or operator shall maintain a copy of that document in the facility's on-site records until closure of the facility. The exclusion applies so long as the owner or operator meets all of the conditions. If the owner or operator goes out of compliance with any condition, the owner or operator may apply to the director for reinstatement. The director may reinstate the exclusion upon finding that the owner or operator has returned to compliance with all conditions, and that the violations are not likely to recur.

- (10) EPA hazardous waste numbers K060, K087, K141, K142, K143, K144, K145, K147, and K148, and any wastes from the coke by-products processes that are hazardous only because such wastes and by-products exhibit the toxicity characteristic specified in rule 3745-51-24 of the Administrative Code when, subsequent to generation, these materials are recycled to coke ovens, to the tar recovery process as a feedstock to produce coal tar, or mixed with coal tar prior to the tar's sale or refining. This exclusion is conditioned on there being no land disposal of the wastes from the point the wastes are generated to the point the wastes are recycled to coke ovens or tar recovery or refining processes, or mixed with coal tar.
- (11) Nonwastewater splash condenser dross residue from the treatment of K061 in high temperature metals recovery units, provided such residue is shipped in drums (if shipped) and not land disposed before recovery.
- (12) Oil-bearing secondary materials and recovered oil.

- (a) Oil-bearing hazardous secondary materials (i.e., sludges, by-products, or spent materials) that are generated at a petroleum refinery (SIC code 2911) and are inserted into the petroleum refining process [SIC code 2911 - including, but not limited to, distillation, catalytic cracking, fractionation, or thermal cracking units (i.e., cokers)] unless the material is placed on the land, or accumulated speculatively before being so recycled. Materials inserted into thermal cracking units are excluded under this paragraph, provided that the coke product also does not exhibit a characteristic of hazardous waste. Oil-bearing hazardous secondary materials may be inserted into the same petroleum refinery where the oil-bearing hazardous secondary materials are generated, or sent directly to another petroleum refinery, and still be excluded under this provision. Except as provided in paragraph (A)(12)(b) of this rule, oil-bearing hazardous secondary materials generated elsewhere in the petroleum industry (i.e., from sources other than petroleum refineries) are not excluded under this rule. Residuals generated from processing or recycling materials excluded under this paragraph, where such materials as generated would have otherwise met a listing under rules 3745-51-30 to 3745-51-35 of the Administrative Code, are designated as F037 listed wastes when disposed of or intended for disposal.
 - (b) Recovered oil that is recycled in the same manner and with the same conditions as described in paragraph (A)(12)(a) of this rule. Recovered oil is oil that has been reclaimed from secondary materials (including wastewater) generated from normal petroleum industry practices, including refining, exploration and production, bulk storage, and transportation incident thereto (SIC codes 1311, 1321, 1381, 1382, 1389, 2911, 4612, 4613, 4922, 4923, 4789, 5171, and 5172). Recovered oil does not include oil-bearing hazardous wastes listed in rules 3745-51-30 to 3745-51-35 of the Administrative Code; however, oil recovered from such wastes may be considered recovered oil. Recovered oil does not include "used oil" as defined in rule 3745-279-01 of the Administrative Code.
- (13) Excluded scrap metal (processed scrap metal, unprocessed home scrap metal, and unprocessed prompt scrap metal) being recycled.
 - (14) Shredded circuit boards being recycled provided that the shredded circuit boards are both:
 - (a) Stored in containers sufficient to prevent a release to the environment prior to recovery.

- (b) Free of mercury switches, mercury relays, nickel-cadmium batteries, and lithium batteries.
- (15) Condensates derived from the overhead gases from kraft mill steam strippers that are used to comply with 40 ~~C.F.R.~~CFR 63.446(e). The exemption applies only to combustion at the mill generating the condensates.
- (16) [Reserved.]
- (17) "Spent materials," as defined in rule 3745-51-01 of the Administrative Code (other than hazardous wastes listed in rules 3745-51-30 to 3745-51-35 of the Administrative Code), generated within the primary mineral processing industry from which minerals, acids, cyanide, water, or other values are recovered by mineral processing or by beneficiation, provided that all of the following:
- (a) The spent material is legitimately recycled to recover minerals, acids, cyanide, water, or other values.
 - (b) The spent material is not accumulated speculatively.
 - (c) Except as provided in paragraph (A)(17)(d) of this rule, the spent material is stored in tanks, containers, or buildings that meet all of the following minimum integrity standards:
 - (i) A building shall be an engineered structure with a floor, walls, and a roof, all of which are made of non-earthen materials providing structural support (except smelter buildings may have partially earthen floors provided the secondary material is stored on the non-earthen portion), and have a roof suitable for diverting rainwater away from the foundation.
 - (ii) A tank shall be free standing, shall not be a "surface impoundment" as defined in rule 3745-50-10 of the Administrative Code, and shall be manufactured of a material suitable for containment of the contents.
 - (iii) A container shall be free standing and be manufactured of a material suitable for containment of the contents.
 - (iv) If tanks or containers contain any particulate which may be subject to wind dispersal, the owner or operator shall operate these units in a manner which controls fugitive dust.

- (v) Tanks, containers, and buildings shall be designed, constructed, and operated to prevent significant releases to the environment of these materials.
- (d) The director may make a site-specific determination, after public review and comment, that only solid mineral processing spent material may be placed on pads, rather than in tanks, containers, or buildings. Solid mineral processing spent materials do not contain any free liquid. The director shall affirm that pads are designed, constructed, and operated to prevent significant releases of the spent material into the environment. Pads shall provide the same degree of containment afforded by the non-RCRA tanks, containers, and buildings eligible for exclusion.
 - (i) The director also shall consider if storage on pads poses the potential for significant releases via ground water, surface water, and air exposure pathways. Factors to be considered for assessing the ground water, surface water, air exposure pathways are the volume and physical and chemical properties of the spent material, including the potential for migration off the pad; the potential for human or environmental exposure to hazardous constituents migrating from the pad via each exposure pathway; and the possibility and extent of harm to human and environmental receptors via each exposure pathway.
 - (ii) Pads shall meet all of the following minimum standards:
 - (a) Be designed of non-earthen material that is compatible with the chemical nature of the mineral processing spent material.
 - (b) Be capable of withstanding physical stresses associated with placement and removal.
 - (c) Have run-on and run-off controls.
 - (d) Be operated in a manner which controls fugitive dust.
 - (e) Have integrity assurance through inspections and maintenance programs.
 - (iii) Before making a determination under paragraph (A)(17) of this rule, the director shall provide notice and the opportunity for comment to all persons potentially interested in the determination. This may be accomplished by placing notice of this action in major local newspapers, or by broadcasting notice over local radio stations.

- (e) The owner or operator provides a notice to the director, providing all of the following information:
 - (i) The types of materials to be recycled.
 - (ii) The type and location of the storage units and recycling processes.
 - (iii) The annual quantities expected to be placed in land-based units.
 - (iv) This notification shall be updated when there is a change in the type of materials recycled or the location of the recycling process.
 - (f) For purposes of paragraph (B)(7) of this rule, mineral processing spent materials shall be the result of mineral processing and may not include any listed hazardous wastes. Listed hazardous wastes and characteristic hazardous wastes generated by non-mineral processing industries are not eligible for the conditional exclusion from the definition of "waste."
- (18) Petrochemical recovered oil from an associated organic chemical manufacturing facility, where the oil is to be inserted into the petroleum refining process (SIC code 2911) along with normal petroleum refinery process streams, provided that both:
- (a) The oil is hazardous only because the oil exhibits the characteristic of ignitability (as identified in rule 3745-51-21 of the Administrative Code) or the characteristic of toxicity for benzene (waste code D018 in rule 3745-51-24 of the Administrative Code).
 - (b) The oil generated by the organic chemical manufacturing facility is not placed on the land, or accumulated speculatively before being recycled into the petroleum refining process. An "associated organic chemical manufacturing facility" is a facility where the primary SIC code is 2869, but where operations may also include SIC codes 2821, 2822, and 2865; and is physically co-located with a petroleum refinery; and where the petroleum refinery to which the oil being recycled is returned also provides hydrocarbon feedstocks to the organic chemical manufacturing facility. "Petrochemical recovered oil" is oil that has been reclaimed from secondary materials (i.e., sludges, by-products, or spent materials, including wastewater) from normal organic chemical manufacturing operations, as well as oil recovered from organic chemical manufacturing processes.
- (19) Spent caustic solutions from petroleum refining liquid treating processes used as a feedstock to produce cresylic or naphthenic acid unless the material is placed

on the land, or "accumulated speculatively" as defined in paragraph (C)(8) of rule 3745-51-01 of the Administrative Code.

(20) Hazardous secondary materials used to make zinc fertilizers, provided that all of the following conditions are satisfied:

(a) Hazardous secondary materials used to make zinc micronutrient fertilizers shall not be "accumulated speculatively," as defined in paragraph (C)(8) of rule 3745-51-01 of the Administrative Code.

(b) Generators and intermediate handlers of zinc-bearing hazardous secondary materials that are to be incorporated into zinc fertilizers shall:

(i) Submit a one-time notice to the director, which contains the name, address, and U.S. EPA identification number of the generator or intermediate handler facility, provides a brief description of the secondary material that shall be subject to the exclusion, and identifies when the manufacturer intends to begin managing excluded, zinc-bearing hazardous secondary materials under the conditions specified in paragraph (A)(20) of this rule.

(ii) Store the excluded secondary material in tanks, containers, or buildings that are constructed and maintained in a way that prevents releases of the secondary materials into the environment. At a minimum, any building used for this purpose shall be an engineered structure made of non-earthen materials that provide structural support, and shall have a floor, walls, and a roof that prevent wind dispersal and contact with rainwater. Tanks used for this purpose shall be structurally sound and, if outdoors, shall have roofs or covers that prevent contact with wind and rain. Containers used for this purpose shall be kept closed except when it is necessary to add or remove material, and shall be in sound condition. Containers that are stored outdoors shall be managed within storage areas that accomplish all of the following:

(a) Have containment structures or systems sufficiently impervious to contain leaks, spills and accumulated precipitation.

(b) Provide for effective drainage and removal of leaks, spills, and accumulated precipitation.

(c) Prevent run-on into the containment system.

- (iii) With each off-site shipment of excluded hazardous secondary materials, provide written notice to the receiving facility that the material is subject to the conditions of paragraph (A)(20) of this rule.
 - (iv) Maintain at the generator's or intermediate handler's facility for no less than three years records of all shipments of excluded hazardous secondary materials. For each shipment, these records shall at a minimum contain all of the following information:
 - (a) Name of the transporter and date of the shipment.
 - (b) Name and address of the facility that received the excluded material, and documentation confirming receipt of the shipment.
 - (c) Type and quantity of excluded secondary material in each shipment.
- (c) Manufacturers of zinc fertilizers or zinc fertilizer ingredients made from excluded hazardous secondary materials shall do all of the following:
- (i) Store excluded hazardous secondary materials in accordance with the storage requirements for generators and intermediate handlers, as specified in paragraph (A)(20)(b)(ii) of this rule.
 - (ii) Submit a one-time notification to the director that, at a minimum, specifies the name, address and U.S. EPA identification number of the manufacturing facility, and identifies when the manufacturer intends to begin managing excluded, zinc-bearing hazardous secondary materials under the conditions specified in paragraph (A)(20) of this rule.
 - (iii) Maintain for a minimum of three years records of all shipments of excluded hazardous secondary materials received by the manufacturer, which shall at a minimum identify for each shipment the name and address of the generating facility, name of transporter and date the materials were received, the quantity received, and a brief description of the industrial process that generated the material.
 - (iv) Submit to the director an annual report that identifies the total quantities of all excluded hazardous secondary materials that were used to manufacture zinc fertilizers or zinc fertilizer ingredients in

the previous year, the name and address of each generating facility, and the industrial processes from which excluded hazardous secondary materials were generated.

- (d) Nothing in this rule preempts, overrides, or otherwise negates rule 3745-52-11 of the Administrative Code, which requires any person who generates a waste to determine if that waste is a hazardous waste.
- (e) Permitted storage units that have been used to store only zinc-bearing hazardous wastes prior to the submittal of the one-time notice described in paragraph (A)(20)(b)(i) of this rule, and that afterward shall be used only to store hazardous secondary materials excluded under paragraph (A)(20) of this rule, are not subject to the closure requirements of Chapters 3745-54 to 3745-57, 3745-65 to 3745-69, 3745-205, or 3745-256 of the Administrative Code.
- (21) Zinc fertilizers made from hazardous wastes, or hazardous secondary materials that are excluded under paragraph (A)(20) of this rule, provided that all of the following:
- (a) The fertilizers meet the following contaminant limits:

- (i) For metal contaminants:

Constituent	Maximum Allowable Total Concentration in Fertilizer, Per Unit (1%) of Zinc (ppm)
Arsenic	0.3
Cadmium	1.4
Chromium	0.6
Lead	2.8
Mercury	0.3

- (ii) For dioxin contaminants the fertilizer shall contain no more than eight parts per trillion of dioxin, measured as toxic equivalent (TEQ).

- (b) The manufacturer performs sampling and analysis of the fertilizer product to determine compliance with the contaminant limits for metals no less than every six months, and for dioxins no less than every twelve months. Testing also shall be performed whenever changes occur to

manufacturing processes or ingredients that could significantly affect the amounts of contaminants in the fertilizer product. The manufacturer may use any reliable analytical method to demonstrate that no constituent of concern is present in the product at concentrations above the applicable limits. The manufacturer has the responsibility to ensure that the sampling and analysis are unbiased, precise, and representative of the products introduced into commerce.

- (c) The manufacturer maintains for no less than three years records of all sampling and analyses performed to determine compliance with paragraph (A)(21)(b) of this rule. At a minimum, such records shall include all of the following:
 - (i) The dates and times product samples were taken, and the dates the samples were analyzed.
 - (ii) The names and qualifications of the persons taking the samples.
 - (iii) A description of the methods and equipment used to take the samples.
 - (iv) The name and address of the laboratory facility at which analyses of the samples were performed.
 - (v) A description of the analytical methods used, including any cleanup and sample preparation methods.
 - (vi) All laboratory analytical results used to determine compliance with the contaminant limits specified in paragraph (A)(21) of this rule.
- (22) Used cathode ray tubes (CRTs).
- (a) Used, intact "CRTs" as defined in rule 3745-50-10 of the Administrative Code are not wastes within the United States unless the used, intact CRTs are disposed, or "accumulated speculatively" as defined in paragraph (C) (8) of rule 3745-51-01 of the Administrative Code by CRT collectors or glass processors.
 - (b) Used, intact "CRTs" as defined in rule 3745-50-10 of the Administrative Code are not wastes when exported for recycling provided that they the used, intact CRTs comply with rule 3745-51-40 of the Administrative Code.

- (c) Used, broken "CRTs" as defined in rule 3745-50-10 of the Administrative Code are not wastes provided that the used, intact CRTs comply with rule 3745-51-39 of the Administrative Code.
- (d) Glass removed from CRTs is not a waste provided that such glass complies with paragraph (C) of rule 3745-51-39 of the Administrative Code.
- (23) ~~Reserved.~~ Hazardous secondary material generated and legitimately reclaimed within the United States or United States' territories and under the control of the generator, provided that the material complies with paragraphs (A)(23)(a) and (A)(23)(b) of this rule.
- (a)
- (i) The hazardous secondary material is generated and reclaimed at the generating facility (for purposes of this definition, "generating facility" means all contiguous property owned, leased, or otherwise controlled by the hazardous secondary material generator); or
- (ii) The hazardous secondary material is generated and reclaimed at different facilities, if the reclaiming facility is controlled by the generator or if both the generating facility and the reclaiming facility are controlled by a "person," as defined in rule 3745-50-10 of the Administrative Code, and if the generator provides one of the following certifications:
- (a) "On behalf of [insert generator facility name], I certify that this facility will send the indicated hazardous secondary material to [insert reclaimer facility name], which is controlled by [insert generator facility name] and that [insert name of either facility] has acknowledged full responsibility for the safe management of the hazardous secondary material"; or
- (b) "On behalf of [insert generator facility name], I certify that this facility will send the indicated hazardous secondary material to [insert reclaimer facility name], that both facilities are under common control, and that [insert name of either facility] has acknowledged full responsibility for the safe management of the hazardous secondary material."
- (c) For purposes of this paragraph, "control" means the power to direct the policies of the facility, whether by the ownership of stock, voting rights, or otherwise, except that contractors

who operate facilities on behalf of a different "person," as defined in rule 3745-50-10 of the Administrative Code, shall not be deemed to "control" such facilities. The generating and receiving facilities shall both maintain at their facilities for no less than three years records of hazardous secondary materials sent or received under this exclusion. In both cases, the records shall contain the name of the transporter, the date of the shipment, and the type and quantity of the hazardous secondary material shipped or received under the exclusion. These requirements may be satisfied by routine business records (e.g., financial records, bills of lading, copies of department of transportation shipping papers, or electronic confirmations); or

(iii) The hazardous secondary material is generated pursuant to a written contract between a tolling contractor and a toll manufacturer and is reclaimed by the tolling contractor, if the tolling contractor certifies the following:

(a) "On behalf of [insert tolling contractor name], I certify that [insert tolling contractor name] has a written contract with [insert toll manufacturer name] to manufacture [insert name of product or intermediate] which is made from specified unused materials, and that [insert tolling contractor name] will reclaim the hazardous secondary materials generated during this manufacture. On behalf of [insert tolling contractor name], I also certify that [insert tolling contractor name] retains ownership of, and responsibility for, the hazardous secondary materials that are generated during the course of the manufacture, including any releases of hazardous secondary materials that occur during the manufacturing process."

(b) The tolling contractor shall maintain at the tolling contractor's facility for no less than three years, records of hazardous secondary materials received pursuant to the tolling contractor's written contract with the tolling manufacturer, and the tolling manufacturer shall maintain at the tolling manufacturer's facility for no less than three years, records of hazardous secondary materials shipped pursuant to the tolling manufacturer's written contract with the tolling contractor. In both cases, the records shall contain the name of the transporter, the date of the shipment, and the type and

quantity of the hazardous secondary material shipped or received pursuant to the written contract. These requirements may be satisfied by routine business records (e.g., financial records, bills of lading, copies of department of transportation shipping papers, or electronic confirmations). For purposes of this paragraph, "tolling contractor" means a person who arranges for the production of a product or intermediate made from specified unused materials through a written contract with a toll manufacturer. "Toll manufacturer" means a person who produces a product or intermediate made from specified unused materials pursuant to a written contract with a tolling contractor.

(b)

- (i) The hazardous secondary material is "contained" as defined in rule 3745-50-10 of the Administrative Code. A hazardous secondary material released to the environment is discarded and a waste unless it is immediately recovered for the purpose of reclamation. Hazardous secondary material managed in a unit with leaks or other continuing or intermittent unpermitted releases is discarded and a waste.
- (ii) The hazardous secondary material is not "speculatively accumulated," as defined in paragraph (C)(8) of rule 3745-51-01 of the Administrative Code.
- (iii) Notice is provided, as required by rule 3745-50-16 of the Administrative Code.
- (iv) The material is not otherwise subject to material-specific management conditions under paragraph (A) of this rule when reclaimed, and the material is not a spent lead-acid battery (see rules 3745-266-80 and 3745-273-02 of the Administrative Code).
- (v) Persons performing the recycling of hazardous secondary materials under this exclusion shall maintain documentation of their legitimacy determination on-site. Documentation shall be a written description of how the recycling meets all three factors in paragraph (A) of rule 3745-50-17 of the Administrative Code and how the factor in paragraph (B) of rule 3745-50-17 of the Administrative Code was considered. Documentation shall be maintained for three years after the recycling operation has ceased.

- (vi) The emergency preparedness and response requirements in rules 3745-51-400 to 3745-51-420 of the Administrative Code are met.
- (24) ~~Reserved.~~ Hazardous secondary material that is generated and then transferred to another person for the purpose of reclamation is not a waste, provided that:
- (a) The material is not "speculatively accumulated," as defined in paragraph (C)(8) of rule 3745-51-01 of the Administrative Code;
- (b) The material is not handled by any person or facility other than the hazardous secondary material generator, the transporter, an intermediate facility or a reclaimer, and, while in transport, is not stored for more than ten days at a "transfer facility," as defined in rule 3745-50-10 of the Administrative Code, and is packaged according to applicable department of transportation regulations at 49 CFR Parts 173, 178, and 179 while in transport;
- (c) The material is not otherwise subject to material-specific management conditions under paragraph (A) of this rule when reclaimed, and the material is not a spent lead-acid battery (see rules 3745-266-80 and 3745-273-02 of the Administrative Code);
- (d) The reclamation of the material is legitimate, as specified under rule 3745-50-17 of the Administrative Code;
- (e) The hazardous secondary material generator satisfies all of the following conditions:
- (i) The material shall be "contained" as defined in rule 3745-50-10 of the Administrative Code. A hazardous secondary material released to the environment is discarded and a waste unless the waste is immediately recovered for the purpose of recycling. Hazardous secondary material managed in a unit with leaks or other continuing releases is discarded and is a waste.
- (ii) Prior to arranging for transport of hazardous secondary materials to a reclamation facility (or facilities) where the management of the hazardous secondary materials is not addressed under a RCRA part B permit or interim standards, the hazardous secondary material generator shall make reasonable efforts to ensure that each reclaimer intends to properly and legitimately reclaim the hazardous secondary material and not discard the hazardous secondary material, and that each reclaimer will manage the

hazardous secondary material in a manner that is protective of human health and the environment. If the hazardous secondary material will be passing through an intermediate facility where the management of the hazardous secondary materials is not addressed under a RCRA part B permit or interim standards, the hazardous secondary material generator shall make contractual arrangements with the intermediate facility to ensure that the hazardous secondary material is sent to the reclamation facility identified by the hazardous secondary material generator, and the hazardous secondary material generator shall perform reasonable efforts to ensure that the intermediate facility will manage the hazardous secondary material in a manner that is protective of human health and the environment. Reasonable efforts shall be repeated at a minimum of every three years for the hazardous secondary material generator to claim the exclusion and to send the hazardous secondary materials to each reclaimer and any intermediate facility. In making these reasonable efforts, the generator may use any credible evidence available, including information gathered by the hazardous secondary material generator, provided by the reclaimer or intermediate facility, or provided by a third party. The hazardous secondary material generator shall affirmatively answer all of the following questions for each reclamation facility and any intermediate facility:

- (a) Does the available information indicate that the reclamation process is legitimate pursuant to rule 3745-50-17 of the Administrative Code? In answering this question, the hazardous secondary material generator can rely on existing knowledge of the physical and chemical properties of the hazardous secondary material, as well as information from other sources (e.g., the reclamation facility, audit reports, etc.) about the reclamation process.
- (b) Does the publicly available information indicate that the reclamation facility and any intermediate facility that is used by the hazardous secondary material generator notified the appropriate authorities of hazardous secondary materials reclamation activities pursuant to rule 3745-50-16 of the Administrative Code and have they notified the appropriate authorities that the financial assurance condition is satisfied per paragraph (A)(24)(f)(vi) of this rule? In answering these questions, the hazardous secondary material

generator can rely on the available information documenting the reclamation facility's and any intermediate facility's compliance with the notification requirements per rule 3745-50-16 of the Administrative Code, including the requirement in paragraph (A)(5) of rule 3745-50-16 of the Administrative Code to notify Ohio EPA whether the reclaimer or intermediate facility has financial assurance.

(c) Does publicly available information indicate that the reclamation facility or any intermediate facility that is used by the hazardous secondary material generator has not had any formal enforcement actions taken against the facility in the previous three years for violations of Ohio's hazardous waste regulations and has not been classified as a significant noncomplier with RCRA Subtitle C? In answering this question, the hazardous secondary material generator can rely on the publicly available information from U.S. EPA or Ohio EPA. If the reclamation facility or any intermediate facility that is used by the hazardous secondary material generator has had a formal enforcement action taken against the facility in the previous three years for violations of Ohio's hazardous waste rules and has been classified as a significant non-complier with RCRA Subtitle C, does the hazardous secondary material generator have credible evidence that the facilities will manage the hazardous secondary materials properly? In answering this question, the hazardous secondary material generator can obtain additional information from U.S. EPA, Ohio EPA, or the facility itself that the facility has addressed the violations, taken remedial steps to address the violations, and prevent future violations, or that the violations are not relevant to the proper management of the hazardous secondary materials.

(d) Does the available information indicate that the reclamation facility and any intermediate facility that is used by the hazardous secondary material generator have the equipment and trained personnel to safely recycle the hazardous secondary material? In answering this question, the generator may rely on a description by the reclamation facility or by an independent third party of the equipment and trained personnel to be used to recycle the generator's hazardous secondary material.

- (e) If residuals are generated from the reclamation of the excluded hazardous secondary materials, does the reclamation facility have the permits required (if any) to manage the residuals? If not, does the reclamation facility have a contract with an appropriately permitted facility to dispose of the residuals? If not, does the hazardous secondary material generator have credible evidence that the residuals will be managed in a manner that is protective of human health and the environment? In answering these questions, the hazardous secondary material generator can rely on publicly available information from U.S. EPA or Ohio EPA, or information provided by the facility itself.
- (iii) The hazardous secondary material generator shall maintain for a minimum of three years documentation and certification that reasonable efforts were made for each reclamation facility and, if applicable, intermediate facility where the management of the hazardous secondary materials is not addressed under a RCRA part B permit or interim standards prior to transferring hazardous secondary material. Documentation and certification shall be made available upon request by Ohio EPA within seventy-two hours, or within a longer period of time as specified by Ohio EPA. The certification statement shall:
- (a) Include the printed name and official title of an authorized representative of the hazardous secondary material generator company, the authorized representative's signature, and the date signed;
- (b) Incorporate the following language:
- (i) "I hereby certify in good faith and to the best of my knowledge that, prior to arranging for transport of excluded hazardous secondary materials to [insert name or names of reclamation facility and any intermediate facility], reasonable efforts were made in accordance with paragraph (A)(24)(e)(ii) of this rule to ensure that the hazardous secondary materials would be recycled legitimately, and otherwise managed in a manner that is protective of human health and the environment, and that such efforts were made in accordance with paragraph (A)(24)(e)(ii) of this rule to ensure that the hazardous secondary materials would

be recycled legitimately, and otherwise managed in a manner that is protective of human health and the environment, and that such efforts were based on current and accurate information.

(iv) The hazardous secondary material generator shall maintain at the generating facility for no less than three years records of all off-site shipments of hazardous secondary materials. For each shipment, these records shall, at a minimum, contain the following information:

(a) Name of the transporter and date of the shipment;

(b) Name and address of each reclaimer and, if applicable, the name and address of each intermediate facility to which the hazardous secondary material was sent;

(c) The type and quantity of hazardous secondary material in the shipment.

(v) The hazardous secondary material generator shall maintain at the generating facility for no less than three years confirmations of receipt from each reclaimer and, if applicable, each intermediate facility for all off-site shipments of hazardous secondary materials. Confirmations of receipt shall include the name and address of the reclaimer (or intermediate facility), the type and quantity of the hazardous secondary materials received, and the date which the hazardous secondary materials were received. This requirement may be satisfied by routine business records (e.g., financial records, bills of lading, copies of department of transportation shipping papers, or electronic confirmations of receipt);

(vi) The hazardous secondary material generator shall comply with the emergency preparedness and response conditions in rules 3745-51-400 to 3745-51-420 of the Administrative Code.

(f) Reclaimers of hazardous secondary material excluded from regulation under this exclusion and "intermediate facilities" as defined in rule 3745-50-10 of the Administrative Code satisfy all of the following conditions:

(i) The reclaimer and intermediate facility shall maintain at its facility for no less than three years records of all shipments of hazardous secondary material that were received at the facility and, if

applicable, for all shipments of hazardous secondary materials that were received and subsequently sent off-site from the facility for further reclamation. For each shipment, these records shall, at a minimum, contain the following information:

- (a) Name of the transporter and date of the shipment;
 - (b) Name and address of the hazardous secondary material generator and, if applicable, the name and address of the reclaimer or intermediate facility which the hazardous secondary materials were received from;
 - (c) The type and quantity of hazardous secondary material in the shipment; and
 - (d) For hazardous secondary materials that, after being received by the reclaimer or intermediate facility, were subsequently transferred off-site for further reclamation, the name and address of the (subsequent) reclaimer and, if applicable, the name and address of each intermediate facility to which the hazardous secondary material was sent.
- (ii) The intermediate facility shall send the hazardous secondary material to the reclaimer designated by the hazardous secondary materials generator.
- (iii) The reclaimer and intermediate facility shall send to the hazardous secondary material generator confirmations of receipt for all off-site shipments of hazardous secondary materials. Confirmations of receipt shall include the name and address of the reclaimer (or intermediate facility), the type and quantity of the hazardous secondary materials received, and the date which the hazardous secondary materials were received. This requirement may be satisfied by routine business records (e.g., financial records, bills of lading, copies of department of transportation shipping papers, or electronic confirmations of receipt).
- (iv) The reclaimer and intermediate facility shall manage the hazardous secondary material in a manner that is at least as protective as that employed for analogous raw material and shall be contained. An "analogous raw material" is a raw material for which a hazardous secondary material is a substitute and serves the same function

and has similar physical and chemical properties as the hazardous secondary material.

(v) Any residuals that are generated from reclamation processes will be managed in a manner that is protective of human health and the environment. If any residuals exhibit a hazardous characteristic according to rules 3745-51-20 to 3745-51-24 of the Administrative Code, or if they themselves are specifically listed in rules 3745-51-30 to 3745-51-35 of the Administrative Code, such residuals are hazardous wastes and shall be managed in accordance with the applicable requirements of Chapters 3745-50 to 3745-57, 3745-65 to 3745-69, 3745-205, 3745-256, 3745-266, and 3745-270 of the Administrative Code.

(vi) The reclaimer and intermediate facility have financial assurance as required under rules 3745-51-140 to 3745-51-151 of the Administrative Code.

(g) In addition, all persons claiming the exclusion under paragraph (A)(24) of this rule provide notification as required under rule 3745-50-16 of the Administrative Code.

(25) ~~Reserved.~~ Hazardous secondary material that is exported from the United States and reclaimed at a reclamation facility located in a foreign country is not a waste, provided that the hazardous secondary material generator complies with the applicable requirements of paragraphs (A)(24)(a) to (A)(24)(e) of this rule (excepting paragraph (A)(24)(e)(ii)(b) of this rule for foreign reclaimers and foreign intermediate facilities), and that the hazardous secondary material generator also complies with the following requirements:

(a) Notify U.S. EPA of an intended export before the hazardous secondary material is scheduled to leave the United States. A complete notification shall be submitted at least sixty days before the initial shipment is intended to be shipped off-site. This notification may cover export activities extending over a twelve month or lesser period. The notification shall be in writing, signed by the hazardous secondary material generator, and include the following information:

(i) Name, mailing address, telephone number and a U.S. EPA identification number (if applicable) of the hazardous secondary material generator;

- (ii) A description of the hazardous secondary material and the U.S. EPA hazardous waste number that would apply if the hazardous secondary material was managed as hazardous waste and the U.S. department of transportation proper shipping name, hazard class and U.S. EPA identification number (UN/NA) for each hazardous secondary material as identified in 49 CFR Parts 171 to 177;
 - (iii) The estimated frequency or rate at which the hazardous secondary material is to be exported and the period of time over which the hazardous secondary material is to be exported;
 - (iv) The estimated total quantity of hazardous secondary material;
 - (v) All points of entry to and departure from each foreign country through which the hazardous secondary material will pass;
 - (vi) A description of the means by which each shipment of the hazardous secondary material will be transported [e.g., mode of transportation vehicle (air, highway, rail, water, etc.), type or types of container (drums, boxes, tanks, etc.)];
 - (vii) A description of the manner in which the hazardous secondary material will be reclaimed in the country of import;
 - (viii) The name and address of the reclaimer, any intermediate facility, and any alternate reclaimer and intermediate facilities; and
 - (ix) The name of any countries of transit through which the hazardous secondary material will be sent and a description of the approximate length of time the hazardous secondary material will remain in such countries and the nature of its handling while there (for purposes of this rule, the terms "EPA Acknowledgement of Consent," "country of import," and "country of transit" are used as defined in rule 3745-52-80 of the Administrative Code with the exception that the terms in this rule refer to hazardous secondary materials, rather than hazardous waste);
- (b) Notifications shall be submitted electronically using U.S. EPA's "Waste Import Export Tracking System" (WIETS), or its successor system.
- (c) Except for changes to the telephone number in paragraph (A)(25)(a)(i) of this rule and decreases in the quantity of hazardous secondary material indicated pursuant to paragraph (A)(25)(a)(iv) of this rule, when the conditions specified on the original notification change (including

any exceedance of the estimate of the quantity of hazardous secondary material specified in the original notification), the hazardous secondary material generator shall provide U.S. EPA with a written renotification of the change. The shipment cannot take place until consent of the country of import to the changes (except for changes to paragraph (A)(25)(a)(ix) of this rule and in the ports of entry to and departure from countries of transit pursuant to paragraph (A)(25)(a)(v) of this rule) has been obtained and the hazardous secondary material generator receives from U.S. EPA an "EPA Acknowledgment of Consent" reflecting the country of import's consent to the changes.

- (d) Upon request by U.S. EPA, the hazardous secondary material generator shall furnish to U.S. EPA any additional information which a country of import requests in order to respond to a notification.
- (e) U.S. EPA will provide a complete notification to the country of import and any countries of transit. A notification is complete when U.S. EPA receives a notification which U.S. EPA determines satisfies the requirements of paragraph (A)(25)(a) of this rule. Where a claim of confidentiality is asserted with respect to any notification information required by paragraph (A)(25)(a) of this rule, U.S. EPA may find the notification not complete until any such claim is resolved in accordance with rule 3745-50-02 of the Administrative Code.
- (f) The export of hazardous secondary material under paragraph (A)(25) of this rule is prohibited unless the country of import consents to the intended export. When the country of import consents in writing to the receipt of the hazardous secondary material, U.S. EPA will send an "EPA Acknowledgment of Consent" to the hazardous secondary material generator. Where the country of import objects to receipt of the hazardous secondary material or withdraws a prior consent, U.S. EPA will notify the hazardous secondary material generator in writing. U.S. EPA will also notify the hazardous secondary material generator of any responses from countries of transit.
- (g) For exports to "OECD Member" countries, the receiving country may respond to the notification using tacit consent. If no objection has been lodged by any country of import or countries of transit to a notification provided pursuant to paragraph (A)(25)(a) of this rule within thirty days after the date of issuance of the acknowledgement of receipt of notification by the competent authority of the country of import, the transboundary movement may commence. In such cases, U.S. EPA will send an "EPA Acknowledgment of Consent" to inform the hazardous

secondary material generator that the country of import and any relevant countries of transit have not objected to the shipment, and are thus presumed to have consented tacitly. Tacit consent expires one calendar year after the close of the thirty-day period; renotification and renewal of all consents are required for exports after that date.

- (h) A copy of the "EPA Acknowledgment of Consent" shall accompany the shipment. The shipment shall conform to the terms of the "EPA Acknowledgment of Consent."
- (i) If a shipment cannot be delivered for any reason to the reclaimer, intermediate facility or the alternate reclaimer or alternate intermediate facility, the hazardous secondary material generator shall re-notify U.S. EPA of a change in the conditions of the original notification to allow shipment to a new reclaimer in accordance with paragraph (C) of this rule and obtain another "EPA Acknowledgment of Consent."
- (j) Hazardous secondary material generators shall keep a copy of each notification of intent to export and each "EPA Acknowledgment of Consent" for a period of three years after receipt of the "EPA Acknowledgment of Consent." Hazardous secondary material generators may satisfy this recordkeeping requirement by retaining electronically submitted notifications or electronically generated Acknowledgements in their account on U.S. EPA's "Waste Import Export Tracking System" (WIETS), or its successor system, provided that such copies are readily available for viewing and production if requested by any U.S. EPA or authorized state inspector. No hazardous secondary material generator may be held liable for the inability to produce a notification or acknowledgement for inspection under this rule if the hazardous secondary material generator can demonstrate that the inability to produce such copies are due exclusively to technical difficulty with U.S. EPA's "Waste Import Export Tracking System" (WIETS), or its successor system for which the hazardous secondary material generator bears no responsibility.
- (k) Hazardous secondary material generators shall file with the director, no later than March first of each year, a report summarizing the types, quantities, frequency, and ultimate destination of all hazardous secondary materials exported during the previous calendar year. Annual reports shall be submitted electronically using U.S. EPA's "Waste Import Export Tracking System (WIETS)," or its successor system. Such reports shall include the following information:

- (i) Name, mailing and site address, and U.S. EPA identification number (if applicable) of the hazardous secondary material generator;
- (ii) The calendar year covered by the report;
- (iii) The name and site address of each reclaimer and intermediate facility;
- (iv) By reclaimer and intermediate facility, for each hazardous secondary material exported, a description of the hazardous secondary material and the EPA hazardous waste number that would apply if the hazardous secondary material was managed as hazardous waste, the department of transportation hazard class, the name and U.S. EPA identification number (where applicable) for each transporter used, the total amount of hazardous secondary material shipped, and the number of shipments pursuant to each notification;
- (v) A certification signed by the hazardous secondary material generator which states:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment."

- (l) All persons claiming an exclusion under paragraph (A)(25) of this rule shall provide notification as required by rule 3745-50-16 of the Administrative Code.
- (26) "Solvent-contaminated wipes," as defined in rule 3745-50-10 of the Administrative Code, that are sent for cleaning and reuse are not wastes from the point of generation, provided that ~~all of the following~~:
- (a) The solvent-contaminated wipes, when accumulated, stored, and transported, are contained in non-leaking, closed containers that are labeled "Excluded Solvent-Contaminated Wipes." The containers shall be able to contain free liquids, should free liquids occur. During accumulation, a container is considered closed when there is complete contact between the fitted lid and the rim, except when necessary to add or remove solvent-contaminated wipes. When the container is full, or when the solvent-contaminated wipes are no longer being accumulated, or

when the container is being transported, the container shall be sealed with all lids properly and securely affixed to the container and all openings tightly bound or closed sufficiently to prevent leaks and emissions;

- (b) The solvent-contaminated wipes may be accumulated by the generator for up to one hundred eighty days after the start date of accumulation for each container prior to being sent for cleaning;
- (c) At the point of being sent for cleaning on-site or at the point of being transported off-site for cleaning, the solvent-contaminated wipes shall contain "no free liquids" as defined in rule 3745-50-10 of the Administrative Code;
- (d) Free liquids removed from the solvent-contaminated wipes or from the container holding the "wipes," as defined in rule 3745-50-10 of the Administrative Code, shall be managed according to the applicable rules in Chapters 3745-50 to 3745-273 of the Administrative Code;
- (e) Generators shall maintain at the site ~~all of~~ the following documentation:
 - (i) Name and address of the laundry or dry cleaner that is receiving the solvent-contaminated wipes;
 - (ii) Documentation that the one hundred eighty-day accumulation time limit in paragraph (A)(26)(b) of this rule is being met;
 - (iii) Description of the process the generator is using to ensure the solvent-contaminated wipes contain no free liquids at the point of being laundered or dry cleaned on-site or at the point of being transported off-site for laundering or dry cleaning;
- (f) The solvent-contaminated wipes are sent to a laundry or dry cleaner whose discharge, if any, is regulated under Section 301 and Section 402 or Section 307 of the Clean Water Act.

(27) Hazardous secondary material that is generated and then transferred to another person for the purpose of remanufacturing is not a waste, provided that:

- (a) The hazardous secondary material consists of one or more of the following spent solvents: toluene, xylenes, ethylbenzene, 1,2,4-trimethylbenzene, chlorobenzene, n-hexane, cyclohexane, methyl tert-butyl ether, acetonitrile, chloroform, chloromethane, dichloromethane, methyl isobutyl ketone, NN-dimethylformamide, tetrahydrofuran, n-butyl alcohol, ethanol, or methanol;

- (b) The hazardous secondary material originated from using one or more of the solvents listed in paragraph (A)(27)(a) of this rule in a commercial grade for reacting, extracting, purifying, or blending chemicals (or for rinsing out the process lines associated with these functions) in the pharmaceutical manufacturing (NAICS 325412), basic organic chemical manufacturing (NAICS 325199), plastics and resins manufacturing (NAICS 325211), and the paints and coatings manufacturing sectors (NAICS 325510).
- (c) The hazardous secondary material generator sends the hazardous secondary material spent solvents listed in paragraph (A)(27)(a) of this rule to a remanufacturer in the pharmaceutical manufacturing (NAICS 325412), basic organic chemical manufacturing (NAICS 325199), plastics and resins manufacturing (NAICS 325211), and the paints and coatings manufacturing sectors (NAICS 325510).
- (d) After remanufacturing one or more of the solvents listed in paragraph (A)(27)(a) of this rule, the use of the remanufactured solvent is limited to reacting, extracting, purifying, or blending chemicals (or for rinsing out the process lines associated with these functions) in the pharmaceutical manufacturing (NAICS 325412), basic organic chemical manufacturing (NAICS 325199), plastics and resins manufacturing (NAICS 325211), and the paints and coatings manufacturing sectors (NAICS 325510) or to using them as ingredients in a product. These allowed uses correspond to chemical functional uses enumerated under the "Chemical Data Reporting Rule of the Toxic Substances Control Act" (40 CFR Part 704 and 40 CFR Parts 710 to 711), including industrial function codes U015 (solvents consumed in a reaction to produce other chemicals) and U030 (solvents become part of the mixture);
- (e) After remanufacturing one or more of the solvents listed in paragraph (A)(27)(a) of this rule, the use of the remanufactured solvent does not involve cleaning or degreasing oil, grease, or similar material from textiles, glassware, metal surfaces, or other articles. (These disallowed continuing uses correspond to chemical functional uses in industrial function code U029 under the "Chemical Data Reporting Rule of the Toxics Substances Control Act."); and
- (f) Both the hazardous secondary material generator and the remanufacturer shall:
- (i) Notify the director and update the notification every two years per rule 3745-50-16 of the Administrative Code;

(ii) Develop and maintain an up-to-date remanufacturing plan which identifies:

(a) The name, address and U.S. EPA identification number of the generator, and the remanufacturer;

(b) The types and estimated annual volumes of spent solvents to be remanufactured;

(c) The processes and industry sectors that generate the spent solvents;

(d) The specific uses and industry sectors for the remanufactured solvents; and

(e) A certification from the remanufacturer stating:

"On behalf of [insert remanufacturer facility name], I certify that this facility is a remanufacturer under pharmaceutical manufacturing (NAICS 325412), basic organic chemical manufacturing (NAICS 325199), plastics and resins manufacturing (NAICS 325211), and the paints and coatings manufacturing sectors (NAICS 325510), and will accept the spent solvents for the sole purpose of remanufacturing into commercial-grade solvents that will be used for reacting, extracting, purifying, or blending chemicals (or for rinsing out the process lines associated with these functions) or for use as product ingredients. I also certify that the remanufacturing equipment, vents, and tanks are equipped with and are operating air emission controls in compliance with the appropriate Clean Air Act regulations under 40 CFR Part 60, 40 CFR Part 61, or 40 CFR Part 63; or, absent such Clean Air Act standards for the particular operation or piece of equipment covered by the remanufacturing exclusion, are in compliance with the appropriate standards in rules 3745-51-730 to 3745-51-735, 3745-51-750 to 3745-51-764, and 3745-51-780 to 3745-51-789 of the Administrative Code)";

(iii) Maintain records of shipments and confirmations of receipts for a period of three years after the dates of the shipments;

- (iv) Prior to remanufacturing, store the hazardous spent solvents in tanks or containers that meet technical standards in rules 3745-51-170 to 3745-51-179 and 3745-51-190 to 3745-51-200 of the Administrative Code, with the tanks and containers being labeled or otherwise having an immediately available record of the material being stored;
- (v) During remanufacturing, and during storage of the hazardous secondary materials prior to remanufacturing, the remanufacturer certifies that the remanufacturing equipment, vents, and tanks are equipped with and are operating air emission controls in compliance with the appropriate Clean Air Act regulations under 40 CFR Part 60, 40 CFR Part 61, or 40 CFR Part 63; or, absent such Clean Air Act standards for the particular operation or piece of equipment covered by the remanufacturing exclusion, are in compliance with the appropriate standards in rules 3745-51-730 to 3745-51-735, 3745-51-750 to 3745-51-764, and 3745-51-780 to 3745-51-789 of the Administrative Code); and
- (vi) Meet the requirements prohibiting speculative accumulation in paragraph (C)(8) of rule 3745-51-01 of the Administrative Code.

(B) Wastes which are not hazardous wastes. The following wastes are not hazardous wastes:

- (1) Household waste, including household waste that has been collected, transported, stored, treated, disposed, recovered (e.g., refuse-derived fuel), or reused. As used in Chapter 3745-51 of the Administrative Code, "household waste" means any waste material (including garbage, trash, and sanitary wastes in septic tanks) derived from households (including single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas). A resource recovery facility managing municipal waste ~~shall~~ is not be deemed to be treating, storing, disposing of, or otherwise managing hazardous wastes for the purposes of regulation under the hazardous waste rules, if such facility:

(a) Receives and burns only:

- (i) Household waste (from single and multiple dwellings, hotels, motels, and other residential sources); and
- (ii) Waste from commercial or industrial sources that does not contain hazardous waste; and

- (b) Does not accept hazardous wastes and the owner or operator of such facility has established contractual requirements or other appropriate notification or inspection procedures to assure that hazardous wastes are not received at or burned in such facility.
- (2) Wastes generated by any of the following and which are returned to the soils as fertilizers:
 - (a) The growing and harvesting of agricultural crops.
 - (b) The raising of animals, including animal manures.
- (3) Mining overburden returned to the mine site.
- (4) ~~Coal and fossil fuels combustion residuals.~~
 - (a) Fly ash waste, bottom ash waste, slag waste, and flue gas emission control waste generated primarily from the combustion of coal or other fossil fuels, except as provided by rule 3745-266-112 of the Administrative Code for facilities that burn or process hazardous waste.
 - (b) The following wastes generated primarily from processes that support the combustion of coal or other fossil fuels that are co-disposed with the wastes in paragraph (B)(4)(a) of this rule, except as provided by rule 3745-266-112 of the Administrative Code for facilities that burn or process hazardous waste:
 - (i) "Coal pile run-off" means any precipitation that drains off coal piles.
 - (ii) "Boiler cleaning solutions" means water solutions and chemical solutions used to clean the fire-side and water-side of the boiler.
 - (iii) "Boiler blowdown" means water purged from boilers used to generate steam.
 - (iv) "Process water treatment and demineralizer regeneration wastes" means sludges, rinses, and spent resins generated from processes to remove dissolved gases, suspended solids, and dissolved chemical salts from combustion system process water.
 - (v) "Cooling tower blowdown" means water purged from a closed cycle cooling system. Closed cycle cooling systems include cooling towers, cooling ponds, or spray canals.

- (vi) "Air heater and precipitator washes" means wastes from cleaning air preheaters and electrostatic precipitators.
 - (vii) "Effluents from floor and yard drains and sumps" means wastewaters, such as wash water, collected by or from floor drains, equipment drains, and sumps located inside the power plant building; and wastewaters, such as rain runoff, collected by yard drains and sumps located outside the power plant building.
 - (viii) "Wastewater treatment sludges" means sludges generated from the treatment of wastewaters specified in paragraphs (B)(4)(b)(i) to (B)(4)(b)(vi) of this rule.
- (5) Drilling fluids, produced waters, and other wastes associated with the exploration, development, or production of crude oil, natural gas or geothermal energy.
- (6) ~~Chromium hazardous waste exclusion:~~
- (a) Wastes which fail the test for the toxicity characteristic because chromium is present or are listed as a hazardous waste in rules 3745-51-30 to 3745-51-35 of the Administrative Code due to the presence of chromium, which do not fail the test for the toxicity characteristic for any other constituent or are not listed due to the presence of any other constituent, and which do not fail the test for any other characteristic, if a waste generator or waste generators show that ~~all of the following~~:
 - (i) The chromium in the waste is exclusively (or nearly exclusively) trivalent chromium; and
 - (ii) The waste is generated from an industrial process which uses trivalent chromium exclusively (or nearly exclusively) and the process does not generate hexavalent chromium; and
 - (iii) The waste is typically and frequently managed in non-oxidizing environments.
 - (b) Specific wastes which meet the standards in paragraphs (B)(6)(a)(i), (B)(6)(a)(ii), and (B)(6)(a)(iii) of this rule (so long as the specific wastes do not fail the test for the toxicity characteristic for any other constituent, and do not exhibit any other characteristic) are:
 - (i) Chrome (blue) trimmings generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/

retan/wet finish; hair save/chrome tan/retan/wet finish; retan/wet finish; no beamhouse; through-the-blue; and shearling.

- (ii) Chrome (blue) shavings generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish; hair save/chrome tan/retan/wet finish; retan/wet finish; no beamhouse; through-the-blue; and shearling.
 - (iii) Buffing dust generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish; hair save/chrome tan/retan/wet finish; retan/wet finish; no beamhouse; through-the-blue.
 - (iv) Sewer screenings generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish; hair save/chrome tan/retan/wet finish; retan/wet finish; no beamhouse; through-the-blue; and shearling.
 - (v) Wastewater treatment sludges generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish; hair save/chrome tan/retan/wet finish; retan/wet finish; no beamhouse; through-the-blue; and shearling.
 - (vi) Wastewater treatment sludges generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish; hair save/chrome tan/retan/wet finish; and through-the-blue.
 - (vii) Waste scrap leather from the leather tanning industry, the shoe manufacturing industry, and other leather product manufacturing industries.
 - (viii) Wastewater treatment sludges from the production of titanium dioxide pigment using chromium-bearing ores by the chloride process.
- (7) Waste from the extraction, beneficiation, and processing of ores and minerals (including coal, phosphate rock, and overburden from the mining of uranium ore), except as provided by rule 3745-266-112 of the Administrative Code for facilities that burn or process hazardous waste.
- (a) For the purposes of paragraph (B)(7) of this rule, beneficiation of ores and minerals is restricted to any of the following activities:

- (i) Crushing;
- (ii) Grinding;
- (iii) Washing;
- (iv) Dissolution;
- (v) Crystallization;
- (vi) Filtration;
- (vii) Sorting;
- (viii) Sizing;
- (ix) Drying;
- (x) Sintering;
- (xi) Pelletizing;
- (xii) Briquetting;
- (xiii) Calcining to remove water or carbon dioxide;
- (xiv) Roasting, autoclaving, or chlorination in preparation for leaching [except where the roasting (or autoclaving or chlorination) and leaching sequence produces a final or intermediate product that does not undergo further beneficiation or processing];
- (xv) Gravity concentration;
- (xvi) Magnetic separation;
- (xvii) Electrostatic separation;
- (xviii) Flotation;
- (xix) Ion exchange;
- (xx) Solvent extraction;
- (xxi) Electrowinning;
- (xxii) Precipitation;

(xxiii) Amalgamation; and

(xxiv) Heap, dump, vat, tank, and in situ leaching.

(b) For the purposes of paragraph (B)(7) of this rule, waste from the processing of ores and minerals includes only the following wastes as generated:

(i) Slag from primary copper processing;

(ii) Slag from primary lead processing;

(iii) Red and brown muds from bauxite refining;

(iv) Phosphogypsum from phosphoric acid production;

(v) Slag from elemental phosphorus production;

(vi) Gasifier ash from coal gasification;

(vii) Process wastewater from coal gasification;

(viii) Calcium sulfate wastewater treatment plant sludge from primary copper processing;

(ix) Slag tailings from primary copper processing;

(x) Fluorogypsum from hydrofluoric acid production;

(xi) Process wastewater from hydrofluoric acid production;

(xii) Air pollution control dust or sludge from iron blast furnaces;

(xiii) Iron blast furnace slag;

(xiv) Treated residue from roasting or leaching of chrome ore;

(xv) Process wastewater from primary magnesium processing by the anhydrous process;

(xvi) Process wastewater from phosphoric acid production;

(xvii) Basic oxygen furnace and open hearth furnace air pollution control dust or sludge from carbon steel production;

- (xviii) Basic oxygen furnace and open hearth furnace slag from carbon steel production-;
 - (xix) Chloride process waste solids from titanium tetrachloride production-; and
 - (xx) Slag from primary zinc processing.
- (c) A residue derived from co-processing mineral processing secondary materials with normal beneficiation raw materials or with normal mineral processing raw materials remains excluded under paragraph (B) of this rule if the owner or operator ~~does both of the following:~~
- (i) Processes at least fifty per cent by weight normal beneficiation raw materials or normal mineral processing raw materials-; and
 - (ii) Legitimately reclaims the secondary mineral processing materials.
- (8) Cement kiln dust waste, except as provided by rule 3745-266-112 of the Administrative Code for facilities that burn or process hazardous waste.
- (9) Waste which consists of discarded arsenical-treated wood or wood products which fails the test for the toxicity characteristic for EPA hazardous waste numbers D004 to D017 and which is not a hazardous waste for any other reason if the waste is generated by persons who utilize the arsenical-treated wood and wood products for these materials' intended end use.
- (10) Petroleum-contaminated media and debris that fail the test for the toxicity characteristic of rule 3745-51-24 of the Administrative Code (EPA hazardous waste numbers D018 to D043 only) and are subject to the corrective action regulations under Chapter 1301:7-9 of the Administrative Code.
- (11) Injected ground water that is hazardous only because the injected ground water exhibits the toxicity characteristic (U.S. EPA hazardous waste numbers D018 to D043 only) in rule 3745-51-24 of the Administrative Code that is reinjected through an underground injection well pursuant to free phase hydrocarbon recovery operations undertaken at petroleum refineries, petroleum marketing terminals, petroleum bulk plants, petroleum pipelines, and petroleum transportation spill sites until January 25, 1993. This extension applies to recovery operations in existence, or for which contracts have been issued, on or before March 25, 1991. For ground water returned through infiltration galleries from such operations at petroleum refineries, marketing terminals, and bulk plants, this extension applies until October 2, 1991. New operations involving injection wells (beginning after March 25, 1991) shall qualify for

this compliance date extension (until January 25, 1993) only if ~~both of the following:~~

- (a) Operations are performed pursuant to a written state agreement or order that includes a provision to assess the ground water and the need for further remediation once the free phase recovery is completed; and
 - (b) A copy of the written agreement or order has been submitted to "Ohio EPA, Hazardous Waste Management Program, P.O. Box 1049, Columbus, OH" 43216-1049.
- (12) Used chlorofluorocarbon refrigerants from totally enclosed heat transfer equipment, including mobile air conditioning systems, mobile refrigeration, and commercial and industrial air conditioning and refrigeration systems that use chlorofluorocarbons as the heat transfer fluid in a refrigeration cycle, provided the refrigerant is reclaimed for further use.
- (13) Non-terne plated used oil filters that are not mixed with waste listed in rules 3745-51-30 to 3745-51-35 of the Administrative Code if these oil filters have been gravity hot-drained using one of the following methods:
- (a) Puncturing the filter anti-drain back valve or the filter dome end and hot-draining; ;
 - (b) Hot-draining and crushing; ;
 - (c) Dismantling and hot-draining; or
 - (d) Any other equivalent hot-draining method which removes used oil.
- (14) Used oil re-refining distillation bottoms that are used as feedstock to manufacture asphalt products.
- (15) Leachate or gas condensate collected from landfills where certain wastes have been disposed, provided that:
- (a) The wastes disposed would meet one or more of the listing descriptions for the following:
 - (i) EPA hazardous waste numbers K169, K170, K171, and K172 if these wastes had been generated after February 8, 1999; ;
 - (ii) EPA hazardous waste numbers K174, K175, K176, K177, and K178, if these wastes had been generated after May 20, 2002; or

- (iii) EPA hazardous waste number K181 if these wastes had been generated after August 23, 2005.
- (b) The wastes described in any of the following paragraph (B)(15)(a) of this rule were disposed prior to the following effective dates of the listings:
 - (i) Paragraph (B)(15)(a)(i) of this rule were disposed prior to February 8, 1999;
 - (ii) Paragraph (B)(15)(a)(ii) of this rule were disposed prior to May 20, 2002;
 - (iii) Paragraph (B)(15)(a)(iii) of this rule were disposed prior to August 23, 2005.
- (c) The leachate or gas condensate do not exhibit any characteristic of hazardous waste nor are derived from any other listed hazardous waste.
- (d) Discharge of the leachate or gas condensate, including leachate or gas condensate transferred from the landfill to a POTW by truck, rail, or dedicated pipe, is subject to regulation under Section 307(b) or Section 402 of the Clean Water Act.
- (e) As of February 13, 2001, leachate or gas condensate derived from K169 to K172 is no longer exempt if such leachate or gas condensate is stored or managed in a surface impoundment prior to discharge. After February 26, 2007, leachate or gas condensate derived from K181 ~~shall~~ is no longer ~~be~~ exempt if such leachate or gas condensate is stored or managed in a surface impoundment prior to discharge. After November 21, 2003, leachate or gas condensate derived from K176, K177, and K178 ~~will~~ is no longer ~~be~~ exempt if such leachate or gas condensate is stored or managed in a surface impoundment prior to discharge. There is one exception: If the surface impoundment is used to temporarily store leachate or gas condensate in response to an emergency situation (e.g., shutdown of wastewater treatment system), provided the impoundment has a double liner, and provided the leachate or gas condensate is removed from the impoundment and continues to be managed in compliance with the conditions of this paragraph after the emergency ends.

(16) [Reserved.]

(17) [Reserved.]

- (18) "Solvent-contaminated wipes," except for "wipes" (both terms are defined in rule 3745-50-10 of the Administrative Code) that are hazardous waste due to the presence of trichloroethylene, that are sent for disposal are not hazardous wastes from the point of generation provided that ~~all of the following~~:
- (a) The solvent-contaminated wipes, when accumulated, stored, and transported, are contained in non-leaking, closed containers that are labeled "Excluded Solvent-Contaminated Wipes." The containers shall be able to contain free liquids, should free liquids occur. During accumulation, a container is considered closed when there is complete contact between the fitted lid and the rim, except when necessary to add or remove solvent-contaminated wipes. When the container is full, or when the solvent-contaminated wipes are no longer being accumulated, or when the container is being transported, the container shall be sealed with all lids properly and securely affixed to the container and all openings tightly bound or closed sufficiently to prevent leaks and emissions;
 - (b) The solvent-contaminated wipes may be accumulated by the generator for up to one hundred eighty days after the start date of accumulation for each container prior to being sent for disposal;
 - (c) At the point of being transported for disposal, the solvent-contaminated wipes shall contain "no free liquids" as defined in rule 3745-50-10 of the Administrative Code;
 - (d) Free liquids removed from the solvent-contaminated wipes or from the container holding the wipes shall be managed according to the applicable rules in Chapters 3745-50 to 3745-273 of the Administrative Code;
 - (e) Generators shall maintain at the site ~~all of the following~~ documentation:
 - (i) Name and address of the landfill or combustor that is receiving the solvent-contaminated wipes;
 - (ii) Documentation that the one hundred eighty-day accumulation time limit in paragraph (B)(18)(b) of this rule is being met; and
 - (iii) Description of the process the generator is using to ensure solvent-contaminated wipes contain no free liquids at the point of being transported for disposal;
 - (f) The solvent-contaminated wipes are sent ~~directly according to any of the following~~ for disposal:

- (i) ~~For disposal to~~To a sanitary landfill regulated under Chapter 3745-27 of the Administrative code and that complies with rule 3745-27-08 of the Administrative code and is permitted, licensed, or otherwise authorized by Ohio, or is permitted, licensed, or otherwise authorized by another state that that allows the disposal of contaminated wipes in such landfill-; or
- (ii) ~~For disposal to~~To a permitted hazardous waste landfill unit regulated under Chapters 3745-54 to 3745-57 and 3745-205 of the Administrative Code, including rule 3745-57-03 of the Administrative Code, or is an authorized hazardous waste landfill in another authorized state-; or
- (iii) To a municipal waste combustor or other combustion facility regulated under Section 129 of the Clean Air Act or to a hazardous waste combustor, boiler, or industrial furnace regulated under Chapters 3745-54 to 3745-57 and 3745-205, or Chapters 3745-65 to 3745-69 and 3745-256, or rules 3745-266-100 to 3745-266-112 of the Administrative Code.

(C) Hazardous wastes which are exempted from certain rules. A hazardous waste which is generated in a product or raw material storage tank, a product or raw material transport vehicle or vessel, a product or raw material pipeline, or in a manufacturing process unit or an associated non-waste-treatment-manufacturing unit, is not subject to regulation under Chapters 3745-50, 3745-52, 3745-53, 3745-54 to 3745-57, 3745-65 to 3745-69, 3745-205, 3745-256, and 3745-270 of the Administrative Code, or to the requirement to notify Ohio EPA or U.S. EPA of regulated waste activity, until hazardous waste exits the unit in which hazardous waste was generated, unless the unit is a surface impoundment, or unless the hazardous waste remains in the unit more than ninety days after the unit ceases to be operated for manufacturing, or for storage or transportation of product or raw materials.

(D) Samples.

(1) Except as provided in paragraphs (D)(2) and (D)(4) of this rule, a sample of waste or a sample of water, soil, or air, which is collected for the sole purpose of testing to determine the characteristics or composition of such sample, is not subject to Chapters 3745-50, 3745-52, 3745-53, 3745-54 to 3745-57, 3745-65 to 3745-69, 3745-205, 3745-256, 3745-266, and 3745-270 of the Administrative Code or to the requirement to notify Ohio EPA or U.S. EPA of regulated waste activity, when ~~any of the following occurs:~~

- (a) The sample is being transported to a laboratory for the purpose of testing-; or

- (b) The sample is being transported back to the sample collector after testing; or
 - (c) The sample is being stored by the sample collector before transport to a laboratory for testing; or
 - (d) The sample is being stored in a laboratory before testing; or
 - (e) The sample is being stored in a laboratory after testing but before the sample is returned to the sample collector; or
 - (f) The sample is being stored temporarily in the laboratory after testing for a specific purpose (for example, until conclusion of a court case or enforcement action where further testing of the sample may be necessary).
- (2) In order to qualify for the exemption in paragraphs (D)(1)(a) and (D)(1)(b) of this rule, a sample collector shipping samples to a laboratory and a laboratory returning samples to a sample collector shall ~~do one of the following~~:
- (a) Comply with U.S. department of transportation (DOT) requirements, United States postal service (USPS), or any other applicable shipping requirements; or
 - (b) Comply with ~~both of the~~ following requirements if the sample collector determines that DOT, USPS, or other shipping requirements do not apply to the shipment of the sample:
 - (i) Assure that ~~all of the~~ following information accompanies the sample:
 - (a) The sample collector's name, mailing address, and telephone number;
 - (b) The laboratory's name, mailing address, and telephone number;
 - (c) The quantity of the sample;
 - (d) The date of shipment; and
 - (e) A description of the sample.
 - (ii) Package the sample so that the sample does not leak, spill, or vaporize from the packaging.

- (3) This exemption does not apply if the laboratory determines that the waste is hazardous, but the laboratory is no longer meeting any of the conditions stated in paragraph (D)(1) of this rule.
- (4) In order to qualify for the exemption in paragraphs (D)(1)(a) and (D)(1)(b) of this rule, the mass of a sample that will be exported to a foreign laboratory or that will be imported to a United States laboratory from a foreign source shall additionally not exceed twenty-five kilograms.

(E) Treatability study samples.

- (1) Except as provided in paragraphs (E)(2) and (E)(4) of this rule, persons who generate or collect samples for the purpose of conducting "treatability studies" as defined in rule 3745-50-10 of the Administrative Code, are not subject to Chapters 3745-51 to 3745-53 of the Administrative Code or to the requirement to notify Ohio EPA or U.S. EPA of regulated waste activity, nor are such samples included in the quantity determinations of rule 3745-52-13 of the Administrative Code when ~~one of the following occurs~~:
 - (a) The sample is being collected and prepared for transportation by the generator or sample collector; or
 - (b) The sample is being accumulated or stored by the generator or sample collector prior to transportation to a laboratory or testing facility; or
 - (c) The sample is being transported to the laboratory or testing facility for the purpose of conducting a treatability study.
- (2) The exemption in paragraph (E)(1) of this rule is applicable to samples of hazardous waste being collected and shipped for the purpose of conducting treatability studies provided that ~~all of the following~~:
 - (a) The generator or sample collector uses (in "treatability studies") no more than ten thousand kilograms of media contaminated with non-acute hazardous waste, one thousand kilograms of non-acute hazardous waste other than contaminated media, one kilogram of acute hazardous waste, two thousand five hundred kilograms of media contaminated with acute hazardous waste for each process being evaluated for each generated waste stream; and
 - (b) The mass of each sample shipment does not exceed ten thousand kilograms; the ten thousand kilograms quantity may be all media contaminated with non-acute hazardous waste, or may include two thousand five hundred kilograms of media contaminated with acute hazardous waste,

one thousand kilograms of hazardous waste, and one kilogram of acute hazardous waste-; and

- (c) The sample shall be packaged so that the sample ~~shall~~will not leak, spill, or vaporize from the sample's packaging during shipment and the requirements of paragraph (E)(2)(c)(i) or (E)(2)(c)(ii) of this rule are met.
- (i) The transportation of each sample shipment complies with DOT, USPS, or any other applicable shipping requirements-; or
- (ii) If the DOT, USPS, or other shipping requirements do not apply to the shipment of the sample, ~~all of~~ the following information shall accompany the sample:
- (a) The name, mailing address, and telephone number of the originator of the sample-; ;
- (b) The name, address, and telephone number of the facility that will perform the treatability study-; ;
- (c) The quantity of the sample-; ;
- (d) The date of shipment-; and
- (e) A description of the sample, including the sample's EPA hazardous waste number.
- (d) The sample is shipped to a laboratory or testing facility which is exempt under paragraph (F) of this rule or has an appropriate RCRA permit or interim status or, in Ohio, is operating under an Ohio hazardous waste permit or permit by rule.
- (e) The generator or sample collector maintains ~~all of~~ the following records for a period ending three years after completion of the treatability study:
- (i) Copies of the shipping documents-; ;
- (ii) A copy of the contract with the facility conducting the treatability study-; ;
- (iii) Documentation showing ~~all of the following~~:
- (a) The amount of waste shipped under this exemption-; ;

- (b) The name, address, and U.S. EPA identification number of the laboratory or testing facility that received the waste;:
 - (c) The date the shipment was made;: and
 - (d) Whether or not unused samples and residues were returned to the generator.
 - (f) The generator reports the information required under paragraph (E)(2)(e) (iii) of this rule in the generator's biennial report (as required by rule 3745-52-41 of the Administrative Code).
- (3) The director may grant requests, on a case-by-case basis, for up to an additional two years for treatability studies involving bioremediation. The director may grant requests on a case-by-case basis for quantity limits in excess of those specified in paragraphs (E)(2)(a) and (E)(2)(b) and (F)(4) of this rule, for up to an additional five thousand kilograms of media contaminated with non-acute hazardous waste, five hundred kilograms of non-acute hazardous waste, two thousand five hundred kilograms of media contaminated with acute hazardous waste, and one kilogram of acute hazardous waste:
 - (a) In response to requests for authorization to ship, store, and conduct treatability studies on additional quantities in advance of commencing treatability studies. Factors to be considered in reviewing such requests include the nature of the technology, the type of process (e.g., batch versus continuous), size of the unit undergoing testing (particularly in relation to scale-up considerations), the time or quantity of material required to reach steady state operating conditions, or test design considerations such as mass balance calculations.
 - (b) In response to requests for authorization to ship, store, and conduct treatability studies on additional quantities after initiation or completion of initial treatability studies, when ~~any of the following circumstances apply:~~
 - (i) There has been an equipment or mechanical failure during the conduct of a treatability study;:
 - (ii) There is a need to verify the results of a previously conducted treatability study;:
 - (iii) There is a need to study and analyze alternative techniques within a previously evaluated treatment process;: or

- (iv) There is a need to do further evaluation of an ongoing treatability study to determine final specifications for treatment.
- (c) The additional quantities and timeframes allowed in paragraphs (E)(3)(a) and (E)(3)(b) of this rule are subject to all the provisions in paragraphs (E)(1) and (E)(2)(c) to (E)(2)(f) of this rule. The generator or sample collector shall apply to the director in writing and shall provide in writing ~~all of~~ the following information:
- (i) The reason why the generator or sample collector requires additional time or quantity of sample for treatability study evaluation, and the additional time or quantity needed;
 - (ii) Documentation accounting for all samples of hazardous waste from the waste stream which have been sent for or undergone treatability studies including the date each previous sample from the waste stream was shipped, the quantity of each previous shipment, the laboratory or testing facility to which each sample was shipped, what treatability study processes were conducted on each sample shipped, and the available results of each treatability study;
 - (iii) A description of the technical modifications or change in specifications which shall be evaluated and the expected results;
 - (iv) If such further study is being required due to equipment or mechanical failure, the applicant shall include information regarding the reason for the failure or breakdown and also include what procedures or equipment improvements have been made to protect against further breakdowns; and
 - (v) Such other information that the director considers necessary.
- (4) In order to qualify for the exemption in paragraph (E)(1)(a) of this rule, the mass of a sample that will be exported to a foreign laboratory or testing facility, or that will be imported to a United States laboratory or testing facility from a foreign source shall additionally not exceed twenty-five kilograms.
- (F) Samples undergoing treatability studies at laboratories and testing facilities. Samples undergoing treatability studies and the laboratory or testing facility conducting such treatability studies (to the extent such facilities are not otherwise subject to hazardous waste requirements) are not subject to Chapters 3745-50, 3745-52, 3745-53, 3745-54 to 3745-57, 3745-65 to 3745-69, 3745-205, 3745-256, 3745-266, and 3745-270 of the Administrative Code or to requirement to notify Ohio EPA or U.S. EPA of regulated

waste activity, provided that the conditions of ~~paragraphs (F)(1) to (F)(11)~~paragraph (F) of this rule are met. A mobile treatment unit (MTU) may qualify as a testing facility subject to ~~paragraphs (F)(1) to (F)(11)~~paragraph (F) of this rule. Where a group of MTUs are located at the same site, the limitations specified in ~~paragraphs (F)(1) to (F)(11)~~paragraph (F) of this rule apply to the entire group of MTUs collectively as if the group were one MTU.

- (1) No less than forty-five days before conducting treatability studies, the owner or operator of the laboratory or testing facility notifies the director in writing that the owner or operator of the laboratory or testing facility intends to conduct treatability studies under paragraph (F) of this rule.
- (2) The laboratory or testing facility conducting the treatability study has a U.S. EPA identification number.
- (3) No more than a total of ten thousand kilograms of "as received" media contaminated with non-acute hazardous waste, two thousand five hundred kilograms of media contaminated with acute hazardous waste, or two hundred fifty kilograms of other "as received" hazardous waste is subject to initiation of treatment in all treatability studies in any single day. "As received" waste refers to the waste as received in the shipment from the generator or sample collector.
- (4) The quantity of "as received" hazardous waste stored at the facility for the purpose of evaluation in treatability studies does not exceed ten thousand kilograms, the total of which can include ten thousand kilograms of media contaminated with non-acute hazardous waste, two thousand five hundred kilograms of media contaminated with acute hazardous waste, one thousand kilograms of non-acute hazardous wastes other than contaminated media, and one kilogram of acute hazardous waste. This quantity limitation does not include treatment materials (including nonhazardous waste) added to "as received" hazardous waste.
- (5) No more than ninety days have elapsed since the treatability study for the sample was completed, or no more than one year (two years for treatability studies involving bioremediation) have elapsed since the generator or sample collector shipped the sample to the laboratory or testing facility, whichever date first occurs. Up to five hundred kilograms of treated material from a particular waste stream from treatability studies may be archived for future evaluation up to five years after the date of initial receipt. Quantities of materials archived are counted against the total storage limit for the facility.
- (6) The treatability study does not involve the placement of hazardous waste on the land or open burning of hazardous waste.

- (7) The facility maintains records for three years following completion of each study that show compliance with the treatment rate limits and the storage time and quantity limits. ~~All of the~~The following specific information shall be included for each treatability study conducted:
- (a) The name, address, and U.S. EPA identification number of the generator or sample collector of each waste sample;
 - (b) The date the shipment was received;
 - (c) The quantity of waste accepted;
 - (d) The quantity of "as received" waste in storage each day;
 - (e) The date the treatment study was initiated and the amount of "as received" waste introduced to treatment each day;
 - (f) The date the treatability study was concluded; and
 - (g) The date any unused sample or residues generated from the treatability study were returned to the generator or sample collector or, if sent to a designated facility, the name of the facility and the U.S. EPA identification number.
- (8) The facility keeps, on-site, a copy of the treatability study contract and all shipping papers associated with the transport of treatability study samples to and from the facility for a period ending three years after the completion date of each treatability study.
- (9) The facility prepares and submits a report to the director by March fifteenth of each year that includes ~~all of the~~ following information for the previous calendar year:
- (a) The name, address, and U.S. EPA identification number of the facility conducting the treatability studies;
 - (b) The types (by process) of treatability studies conducted;
 - (c) The names and addresses of persons for whom studies have been conducted (including the U.S. EPA identification numbers);
 - (d) The total quantity of waste in storage each day;
 - (e) The quantity and types of waste subjected to treatability studies;

- (f) When each treatability study was conducted: and
 - (g) The final disposition of residues and unused sample from each treatability study.
- (10) The facility determines whether any unused sample or residues generated by the treatability study are hazardous waste under rule 3745-51-03 of the Administrative Code and, if so, are subject to Chapters 3745-51 to 3745-270 and rules 3745-50-40 to 3745-50-235 of the Administrative Code, unless the residues and unused samples are returned to the sample originator under the exemption in paragraph (E) of this rule.
- (11) The facility notifies the director by letter when the facility is no longer planning to conduct any treatability studies at the site.
- (G) Dredged material that is not a hazardous waste. Dredged material that is subject to a permit that has been issued under Section 404 of the Federal Water Pollution Control Act (~~33 U.S.C. 1344~~) or Section 103 of the Marine Protection, Research, and Sanctuaries Act of 1972 (~~33 U.S.C. 1413~~) is not a hazardous waste. For paragraph (G) of this rule, the following definitions apply:
- (1) The term "dredged material" has the same meaning as in 40 ~~C.F.R.~~CFR 232.2.
 - (2) The term "permit" means ~~one of the following~~:
 - (a) A permit issued by the United States army corps of engineers (corps) or an approved state under Section 404 of the Federal Water Pollution Control Act (~~33 U.S.C. 1344~~); or
 - (b) A permit issued by the corps under Section 103 of the Marine Protection, Research, and Sanctuaries Act of 1972 (~~33 U.S.C. 1413~~); or
 - (c) In the case of corps civil works projects, the administrative equivalent of the permits referred to in paragraphs (G)(2)(a) and (G)(2)(b) of this rule, as provided for in corps regulations (for example, see 33 ~~C.F.R.~~CFR 336.1, 33 CFR 336.2, and 33 CFR 337.6).
- (H) Carbon dioxide stream injected for geologic sequestration. Carbon dioxide streams that are captured and transported for purposes of injection into an underground injection well subject to the requirements for "Class VI" underground injection control wells, including the requirements in 40 ~~C.F.R.~~CFR Part 144 and 40 ~~C.F.R.~~CFR Part 146 of the underground injection control program of the Safe Drinking Water Act, are not a hazardous waste, provided the conditions in 40 ~~C.F.R.~~CFR 261.4(h) are met.

(I) [Reserved.]

(J) Airbag waste.

(1) Airbag waste at the airbag waste handler or during transport to an airbag waste collection facility or designated facility is not subject to regulation under Chapters 3745-50, 3745-52, 3745-53, 3745-54 to 3745-57, 3745-65 to 3745-69, 3745-205, 3745-256, 3745-266, and 3745-270 of the Administrative Code, and is not subject to the requirement to notify Ohio EPA or U.S. EPA of regulated waste activity provided that ~~all of the following are met:~~

(a) The airbag waste is accumulated in a quantity of no more than two hundred fifty airbag modules or airbag inflators, for no longer than one hundred eighty days;

(b) The airbag waste is packaged in a container designed to address the risk posed by the airbag waste and labeled "Airbag Waste - Do Not Reuse;"

(c) The airbag waste is sent directly to either ~~of the following:~~

(i) An airbag waste collection facility in the United States under the control of a vehicle manufacturer or the authorized representative of the vehicle manufacturer, or under the control of an authorized party administering a remedy program in response to a recall under the national highway traffic safety administration; or

(ii) A "designated facility" as defined in rule 3745-50-10 of the Administrative Code;

(d) The transport of the airbag waste complies with all applicable U.S. department of transportation regulations in 49 ~~C.F.R.~~ CFR Parts 171 to 180 during transit;

(e) The airbag waste handler maintains at the handler facility for no less than three years records of all off-site shipments of airbag waste and all confirmations of receipt from the receiving facility. For each shipment, these records, at a minimum, shall contain the name of the transporter and date of the shipment, name and address of receiving facility, and the type and quantity of airbag waste (i.e., airbag modules or airbag inflators) in the shipment. Confirmations of receipt shall include the name and address of the receiving facility, the type and quantity of the airbag waste (i.e., airbag modules and airbag inflators) received, and the date which the airbag waste was received. Shipping records and confirmations of receipt shall be made available for inspection and may be satisfied by

routine business records (e.g., electronic or paper financial records, bills of lading, copies of DOT shipping papers, or electronic confirmations of receipt).

- (2) Once the airbag waste arrives at an airbag waste collection facility or designated facility, the airbag waste becomes subject to all applicable hazardous waste rules, and the facility receiving airbag waste is considered the hazardous waste generator for the purposes of the hazardous waste rules and shall comply with Chapter 3745-52 of the Administrative Code.
- (3) Reuse in vehicles of defective airbag modules or defective airbag inflators subject to a recall under the national highway traffic safety administration is considered sham recycling and is prohibited under ~~40 C.F.R. 261.2(e)~~ paragraph (G) of rule 3745-51-02 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."]

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TO BE RESCINDED

3745-51-05 Special requirements for hazardous waste generated by conditionally exempt small quantity generators.

- (A) A generator is a conditionally exempt small quantity generator in a calendar month if he generates no more than one hundred kilograms of hazardous waste in that month.
- (B) Except for those wastes identified in paragraphs (E), (F), (G), and (J) of this rule, a conditionally exempt small quantity generator's hazardous wastes are not subject to regulation under Chapters 3745-52, 3745-53, 3745-54 to 3745-57, 3745-65 to 3745-69, 3745-205, 3745-256, 3745-266, or 3745-270 or rules 3745-50-40 to 3745-50-235 of the Administrative Code or the requirement to notify Ohio EPA or U.S. EPA of regulated waste activity, provided the generator complies with paragraphs (F), (G), and (J) of this rule.
- (C) When making the quantity determinations of Chapters 3745-51 and 3745-52 of the Administrative Code, the generator shall include all hazardous waste that it generates, except hazardous waste that:
- (1) Is exempt from regulation under paragraphs (C) to (F) of rule 3745-51-04, paragraph (A)(3) of rule 3745-51-06, paragraph (A)(1) of rule 3745-51-07, or rule 3745-51-08 of the Administrative Code; or
 - (2) Is managed immediately upon generation only in "on-site elementary neutralization units," "wastewater treatment units," or "totally enclosed treatment facilities" as defined in rule 3745-50-10 of the Administrative Code; or
 - (3) Is recycled, without prior storage or accumulation, only in an on-site process subject to paragraph (C)(2) of rule 3745-51-06 of the Administrative Code; or
 - (4) Is used oil managed under paragraph (A)(4) of rule 3745-51-06 and Chapter 3745-279 of the Administrative Code; or
 - (5) Is spent lead-acid batteries managed under rule 3745-266-80 of the Administrative Code; or
 - (6) Is universal waste managed under rule 3745-51-09 and Chapter 3745-273 of the Administrative Code;
 - (7) Is a hazardous waste that is an unused commercial chemical product (listed in rules 3745-51-30 to 3745-51-35 of the Administrative Code or exhibiting one or more characteristics identified in rules 3745-51-20 to 3745-51-24 of the Administrative Code) that is generated solely as a result of a laboratory clean-

out conducted at an eligible academic entity pursuant to rule 3745-52-213 of the Administrative Code. For purposes of this paragraph, the term "eligible academic entity" has the meaning as in rule 3745-52-200 of the Administrative Code.

(D) In determining the quantity of hazardous waste generated, a generator need not include:

- (1) Hazardous waste when it is removed from on-site storage; or
- (2) Hazardous waste produced by on-site treatment (including reclamation) of his hazardous waste, in accordance with paragraphs (F)(3) and (G)(3) of this rule, so long as the hazardous waste that is treated was counted once; or
- (3) Spent materials that are generated, reclaimed, and subsequently reused on-site, so long as such spent materials have been counted once.

(E) If a generator generates acute hazardous waste in a calendar month in quantities greater than those in paragraphs (E)(1) and (E)(2) of this rule, all quantities of that acute hazardous waste are subject to full regulation under Chapters 3745-52, 3745-53, 3745-54 to 3745-57, 3745-65 to 3745-69, 3745-205, 3745-256, 3745-266, and 3745-270 and rules 3745-50-40 to 3745-50-235 of the Administrative Code, and the requirement to notify Ohio EPA or U.S. EPA of regulated waste activity:

- (1) A total of one kilogram of acute hazardous wastes listed in rule 3745-51-31 or paragraph (E) of rule 3745-51-33 of the Administrative Code.
- (2) A total of one hundred kilograms of any residue or contaminated soil, waste, or other debris resulting from the clean-up of a spill, into or on any land or water, of any acute hazardous wastes listed in rule 3745-51-31 or paragraph (E) of rule 3745-51-33 of the Administrative Code.

[Comment: "Full regulation" means those rules applicable to generators of one thousand kilograms or greater of hazardous waste in a calendar month.]

(F) In order for acute hazardous wastes generated by a generator of acute hazardous wastes in quantities equal to or less than those in paragraph (E)(1) or (E)(2) of this rule to be excluded from full regulation under this rule, the generator shall comply with the following requirements:

- (1) Rule 3745-52-11 of the Administrative Code.
- (2) The generator may accumulate acute hazardous waste on-site. If he accumulates at any time acute hazardous wastes in quantities greater than those in paragraph (E)(1) or (E)(2) of this rule, all of those accumulated wastes are subject to regulation under Chapters 3745-52, 3745-53, 3745-54 to 3745-57, 3745-65 to 3745-69, 3745-205, 3745-256, 3745-266, and 3745-270, and rules 3745-50-40 to 3745-50-235 of the Administrative Code, and the requirement to notify Ohio EPA or U.S. EPA of regulated waste activity. The time period of paragraph (A) of rule 3745-52-34 of the Administrative Code for accumulation of wastes on-site begins when the accumulated wastes exceed the applicable exclusion limit in paragraph (E)(1) or (E)(2) of this rule; and
- (3) A conditionally exempt small quantity generator may either treat or dispose of his acute hazardous waste in an on-site facility or ensure delivery to an off-site storage, treatment, or disposal facility, either of which, if located in the U.S., is:
 - (a) Permitted under rules 3745-50-40 to 3745-50-235 of the Administrative Code; or
 - (b) Operating under a permit by rule as described in paragraph (C) of rule 3745-50-40 of the Administrative Code; or
 - (c) Authorized to manage hazardous waste by a state with a hazardous waste management program approved under 40 CFR Part 271; or
 - (d) Permitted, licensed, or registered by a state other than Ohio to manage municipal solid waste and, if managed in a municipal solid waste landfill, is subject to 40 CFR Part 258 and applicable state law; or
 - (e) Permitted, licensed, or registered by a state other than Ohio to manage non-municipal non-hazardous waste and, if managed in a non-municipal non-hazardous waste disposal unit, is subject to 40 CFR 257.5 to 40 CFR 257.30 and applicable state law; or
 - (f) A facility which is operating under paragraph (C)(2) of rule 3745-51-06 of the Administrative Code; or

- (g) For universal waste managed under Chapter 3745-273 of the Administrative Code, a universal waste handler or destination facility subject to Chapter 3745-273 of the Administrative Code.
- (G) In order for hazardous waste generated by a conditionally exempt small quantity generator in quantities of one hundred kilograms or less of hazardous waste during a calendar month to be excluded from full regulation under this rule, the generator shall comply with the following:
- (1) Rule 3745-52-11 of the Administrative Code;
 - (2) The conditionally exempt small quantity generator may accumulate hazardous waste on-site. If he accumulates at any time one thousand kilograms or greater of his hazardous wastes, all of those accumulated wastes are subject to regulation under the special provisions of Chapter 3745-52 of the Administrative Code applicable to generators of greater than one hundred kilograms and less than one thousand kilograms of hazardous waste in a calendar month, as well as Chapters 3745-53, 3745-54 to 3745-57, 3745-65 to 3745-69, 3745-205, 3745-256, 3745-266, and 3745-270 and rules 3745-50-40 to 3745-50-235 of the Administrative Code, and the requirement to notify Ohio EPA or U.S. EPA of regulated waste activity. The time period of paragraph (D) of rule 3745-52-34 of the Administrative Code for accumulation of wastes on-site begins for a conditionally exempt small quantity generator when the accumulated wastes equal or exceed one thousand kilograms;
 - (3) A conditionally exempt small quantity generator may either treat or dispose of his hazardous waste in an on-site facility, or ensure delivery to an off-site storage, treatment, or disposal facility, either of which, if located in the U.S., is:
 - (a) Permitted under rules 3745-50-40 to 3745-50-235 of the Administrative Code; or
 - (b) Operating under a permit by rule as described in paragraph (C) of rule 3745-50-40 of the Administrative Code; or
 - (c) Authorized to manage hazardous waste by a state with a hazardous waste management program approved under 40 CFR Part 271; or
 - (d) Permitted, licensed, or registered by a state other than Ohio to manage municipal solid waste and, if managed in a municipal solid waste landfill, is subject to 40 CFR Part 258 and applicable state law; or
 - (e) Permitted, licensed, or registered by a state other than Ohio to manage non-municipal non-hazardous waste and, if managed in a non-municipal non-

hazardous waste disposal unit, is subject to 40 CFR 257.5 to 40 CFR 257.30 and applicable state law; or

(f) A facility which is operating under paragraph (C)(2) of rule 3745-51-06 of the Administrative Code; or

(g) For universal waste managed under Chapter 3745-273 of the Administrative Code, a universal waste handler or destination facility subject to Chapter 3745-273 of the Administrative Code.

(H) Hazardous waste subject to the reduced requirements of this rule may be mixed with non-hazardous waste and remain subject to these reduced requirements even though the resultant mixture exceeds the quantity limitations identified in this rule, unless the mixture meets any of the characteristics of hazardous waste identified in rules 3745-51-20 to 3745-51-24 of the Administrative Code.

(I) If any person mixes a waste with a hazardous waste that exceeds a quantity exclusion level of this rule, the mixture is subject to full regulation.

(J) If a conditionally exempt small quantity generator's wastes are mixed with used oil, the mixture is subject to Chapter 3745-279 of the Administrative Code. Any material produced from such a mixture by processing, blending, or other treatment is also so regulated.

[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."]

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3745-51-06

Requirements for recyclable materials.

(A)

- (1) Hazardous wastes that are recycled are subject to the requirements for generators, transporters, and storage facilities of paragraphs (B) and (C) of this rule, except for the materials listed in paragraphs (A)(2), (A)(3), and (A)(4) of this rule. Hazardous wastes that are recycled shall be known as "recyclable materials."
- (2) The following recyclable materials are not subject to the requirements of this rule but are regulated under Chapter 3745-266 of the Administrative Code and all applicable provisions of Chapters 3745-50 and 3745-270 of the Administrative Code:
 - (a) Recyclable materials used in a manner that constitutes disposal (rules 3745-266-20 to 3745-266-23 of the Administrative Code).
 - (b) Hazardous wastes burned [as "burn" is defined in paragraph (A) of rule 3745-266-100 of the Administrative Code] for energy recovery in boilers and industrial furnaces that are not regulated under rules 3745-57-40 to 3745-57-51 or 3745-68-40 to 3745-68-52 of the Administrative Code (rules 3745-266-100 to 3745-266-112 of the Administrative Code).
 - (c) Recyclable materials from which precious metals are reclaimed (rule 3745-266-70 of the Administrative Code).
 - (d) Spent lead-acid batteries that are being reclaimed (rule 3745-266-80 of the Administrative Code).
- (3) The following recyclable materials are not subject to regulation under rules 3745-50-40 to 3745-50-235 or Chapters 3745-52, 3745-53, 3745-54 to 3745-57, 3745-65 to 3745-69, 3745-205, 3745-256, 3745-266, and 3745-270 of the Administrative Code, and are not subject to the requirement to notify Ohio EPA or U.S. EPA of regulated waste activity:
 - (a) Industrial ethyl alcohol that is reclaimed except that exports and imports of such recyclable materials shall comply with 40 CFR Part 262 subpart H:
 - (i) A person who initiates a shipment for reclamation in a foreign country shall comply with 40 CFR Part 262 subpart H.

[Comment: The exercise of foreign relations and international commerce powers is reserved to the federal government under the Constitution. These responsibilities are not delegable to the states.

Therefore, the importation and exportation of hazardous waste into and out of the U.S. is solely regulated by the federal government.]

- (ii) A transporter who transports a shipment for export shall not accept a shipment if the transporter knows the shipment does not conform to the "EPA Acknowledgement of Consent." A transporter who transports a shipment for export shall ensure that a copy of the "EPA Acknowledgement of Consent" accompanies the shipment and shall ensure that the shipment is delivered to the facility designated by the person who initiates the shipment.
- (b) Scrap metal that is not excluded under paragraph (A)(13) of rule 3745-51-04 of the Administrative Code.
 - (c) Fuels produced from the refining of oil-bearing hazardous waste along with normal process streams at a petroleum refining facility, if such wastes result from normal petroleum refining, production, and transportation practices. [This exemption does not apply to fuels produced from oil recovered from oil-bearing hazardous waste, where such recovered oil is already excluded under paragraph (A)(12)(b) of rule 3745-51-04 of the Administrative Code.]
 - (d)
 - (i) Hazardous waste fuel produced from oil-bearing hazardous wastes from petroleum refining, production, or transportation practices, or produced from oil reclaimed from such hazardous wastes, where such hazardous wastes are reintroduced into a process that does not use distillation or does not produce products from crude oil ~~soas~~ long as the resulting fuel meets the used oil specification under rule 3745-279-11 of the Administrative Code and so long as no other hazardous wastes are used to produce the hazardous waste fuel.
 - (ii) Hazardous waste fuel produced from oil-bearing hazardous waste from petroleum refining production and transportation practices, where such hazardous wastes are reintroduced into a refining process after a point at which contaminants are removed, ~~soas~~ long as the fuel meets the used oil fuel specification under rule 3745-279-11 of the Administrative Code.
 - (iii) Oil reclaimed from oil-bearing hazardous wastes from petroleum refining, production, and transportation practices, which reclaimed oil is burned as a fuel without reintroduction to a refining process,

so long as the reclaimed oil meets the used oil specification under rule 3745-279-11 of the Administrative Code.

- (e) Contaminated wipes and apparel that are intended to be laundered and reused. Contaminated wipes and apparel including but not limited to rags, mops, drop cloths, and apparel (e.g., gloves, uniforms, smocks, and coveralls) made of woven or unwoven, natural or synthetic materials (e.g., fabric, leather, or rubber-like material) that exhibit a characteristic of hazardous waste or are otherwise contaminated with hazardous waste as described in rule 3745-51-03 of the Administrative Code, are intended to be cleaned on-site or to be sent to a laundry or other cleaning facility to be cleaned, provided all the following conditions are met:
 - (i) Contaminated wipes and apparel, when accumulated, stored, and transported, are contained in non-leaking, closed containers. The containers shall be able to contain free liquids should free liquids occur.
 - (ii) Contaminated wipes and apparel are not burned for energy recovery, used to produce a fuel, contained in fuels, used in a manner that constitutes disposal, or used to produce products that are applied to the land according to rules 3745-51-02 and 3745-266-20 of the Administrative Code.
 - (iii) Contaminated wipes and apparel are not otherwise exempt under paragraph (A)(26) of rule 3745-51-04 of the Administrative Code.
 - (iv) Hazardous waste shall not be mixed with the contaminated wipes and apparel.
 - (v) The generator of the contaminated wipes and apparel shall do one of the following:
 - (a) Ensure the contaminated wipes and apparel or the container contain no "free liquids" as defined in rule 3745-50-10 of the Administrative Code at the point the wipes and apparel are sent on-site to be cleaned or transported off-site to be cleaned.
 - (b) Develop and implement a written procedure to ensure that the wipes and apparel contain no free liquids when placed in the container and that no free liquids are added to the container at any time.

(c) Maintain a written explanation as to why no free liquids will occur in the container.

(vi) Contaminated wipes and apparel are not contaminated with acute hazardous waste as described in rule 3745-51-30 and listed in rule 3745-51-31 or paragraph (E) of rule 3745-51-33 of the Administrative Code.

(vii) Contaminated wipes and apparel that are contaminated only with used oil shall contain no visible free flowing used oil, in accordance with paragraph (C)(1) of rule 3745-279-10 of the Administrative Code.

[Comment: Items that contain free flowing used oil are subject to Chapter 3745-279 of the Administrative Code.

(viii) Contaminated wipes and apparel are cleaned on-site or sent to an off-site laundry or cleaning facility that is subject to regulation under Section 402 or Section 307(b) of the Clean Water Act for discharge to a publicly owned treatment works or for discharge directly to the waters of the state.

[Comment: In accordance with rule 3745-52-11 of the Administrative Code, the operator of the on-site or off-site laundry or cleaning facility shall evaluate all wastes generated at such facilities, including all contaminated wipes and apparel that are discarded.]

(4) Used oil that is recycled and is also a hazardous waste solely because the used oil exhibits a hazardous characteristic is not subject to Chapters 3745-50, 3745-51, 3745-52, 3745-53, 3745-54 to 3745-57, 3745-65 to 3745-69, 3745-205, 3745-256, 3745-266, and 3745-270 of the Administrative Code, but is regulated under Chapter 3745-279 of the Administrative Code. Used oil that is recycled includes any used oil which is reused, following the used oil's original use, for any purpose (including the purpose for which the oil was originally used). Such term includes, but is not limited to, oil which is re-refined, reclaimed, burned for energy recovery, or reprocessed.

(5) Hazardous waste that is exported or imported for purpose of recovery is subject to the requirements of 40 CFR Part 262 subpart H.

(B) Generators and transporters of recyclable materials are subject to the applicable requirements of Chapters 3745-52 and 3745-53 of the Administrative Code and the

requirement to notify Ohio EPA or U.S. EPA of regulated waste activity, except as provided in paragraph (A) of this rule.

(C)

- (1) Owners or operators of facilities that store recyclable materials before the materials are recycled shall obtain a hazardous waste installation and operation permit in accordance with Chapter 3734. of the Revised Code, except as provided in paragraph (C)(3)(a) of this rule, and are regulated under all applicable provisions of Chapters 3745-54, 3745-55, 3745-65, 3745-66, 3745-266, and 3745-270, and rules 3745-50-40 to 3745-50-235, 3745-56-20 to 3745-56-31, 3745-56-50 to 3745-56-59, 3745-67-20 to 3745-67-30, ~~and 3745-67-50 to 3745-67-60,~~ 3745-205-30 to 3745-205-36, 3745-205-50 to 3745-205-65, 3745-205-80 to 3745-205-90, 3745-256-30 to 3745-256-35, 3745-205-50 to 3745-256-64, and 3745-205-80 to 3745-205-90 of the Administrative Code and the requirement to notify Ohio EPA or U.S. EPA of regulated waste activity, except as provided in paragraph (A) of this rule. (The recycling process itself is exempt from regulation as provided in paragraph (D) of this rule.)
- (2) Owners or operators of facilities that recycle recyclable materials without storing the recyclable materials before recycling are subject to all of the following requirements, except as provided in paragraph (A) of this rule:
 - (a) The requirement to notify Ohio EPA or U.S. EPA of regulated waste activity.
 - (b) Rules 3745-65-71 and 3745-65-72 of the Administrative Code (use of the manifest and manifest discrepancies).
 - (c) ~~Reserved.~~ Paragraph (D) of this rule.
 - (d) Rule 3745-65-75 of the Administrative Code, biennial reporting requirements.
- (3) Limited storage prior to recycling.
 - (a) Owners or operators of facilities that enter recyclable materials into a recycling process within seventy-two hours after arrival at the facility, except as provided in paragraph (A)(2) of this rule, may store recyclable materials in containers, tanks, or containment buildings without an Ohio hazardous waste permit, provided that all of the following requirements are met:

- (i) The notification and U.S. EPA identification number requirements of rule 3745-65-11 of the Administrative Code. A description of the recycling process shall be provided in the comments section of the notification form. The owner or operator shall renotify when there is a change in the recycling process or when the recycling operations cease.
- (ii) The requirements for container management of rules 3745-66-71 to 3745-66-77 of the Administrative Code.
- (iii) The requirements for tank management of rules 3745-66-90 to 3745-66-96, 3745-66-98, 3745-66-99, and paragraphs (A) and (B) of rule 3745-66-97 of the Administrative Code.
- (iv) The requirements for containment buildings of rules 3745-256-100 to 3745-256-101 of the Administrative Code.
- (v) The security requirements of rule 3745-65-14 of the Administrative Code.
- (vi) The inspection requirements of rule 3745-65-15 of the Administrative Code.
- (vii) The personnel training requirements of rule 3745-65-16 of the Administrative Code.
- (viii) The requirements for ignitable wastes, reactive wastes, or incompatible wastes of rule 3745-65-17 of the Administrative Code.
- (ix) The preparedness and prevention requirements of rules 3745-65-30 to 3745-65-37 of the Administrative Code.
- (x) The contingency plan and emergency procedures requirements of rules 3745-65-50 to 3745-65-56 of the Administrative Code.
- (xi) The manifest system, recordkeeping, and reporting requirements of rules 3745-65-70 to 3745-65-72 of the Administrative Code.
- (xii) The operating record requirements of paragraphs (A) and (B)(3) to (B)(14) of rule 3745-65-73 of the Administrative Code.
- (xiii) Maintain an inventory log in the operating record that contain this information for three years:

- (a) The date and time when the recyclable material arrived at the facility.
 - (b) The quantity and type of material received.
 - (c) The name and address of the facility where the recyclable materials shipment originated.
 - (d) The date and time that the recyclable material was placed into the recycling process.
- (xiv) The availability, retention, and disposition of records requirements of rule 3745-65-74 of the Administrative Code.
- (xv) The biennial report requirements of rule 3745-65-75 of the Administrative Code.
- (xvi) The unmanifested waste report requirements of rule 3745-65-76 of the Administrative Code.
- (xvii) The additional reports requirements of rule 3745-65-77 of the Administrative Code.
- (xviii) The closure requirements of paragraphs (A) and (B) of rule 3745-66-11 and rule 3745-66-14 of the Administrative Code.
- (xix) The financial assurance requirements of rule 3745-51-100 of the Administrative Code.
- (xx) The owner or operator shall give advance notice to the director of any anticipated noncompliance with the seventy-two hour time limit for storage. This notice shall contain all of the following:
 - (a) The cause of the anticipated noncompliance.
 - (b) The name, address, and telephone number of the owner or operator.
 - (c) The name, address, and telephone number of the facility.
 - (d) The date and time of the anticipated noncompliance.
 - (e) The name and quantity of materials involved.
 - (f) The estimated time frame for noncompliance.

(xxi) Paragraph (D) of this rule.

(b) Owners or operators of facilities that do not enter recyclable materials into a recycling process within seventy-two hours after arrival at the facility, except as provided in paragraph (A)(2) of this rule, are subject to the requirements of paragraph (C)(1) of this rule.

(D) ~~Reserved.~~ Owners or operators of facilities with hazardous waste management units that recycle hazardous wastes, that are subject to Ohio EPA's permitting requirements, are subject to the requirements of rules 3745-205-30 to 3745-205-36, 3745-205-50 to 3745-205-65, 3745-256-30 to 3745-256-35, and 3745-256-50 to 3745-256-64 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."]

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CERTIFIED ELECTRONICALLY

Certification

06/02/2023

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05/28/1987, 12/08/1988, 12/30/1989, 09/02/1997,
10/20/1998, 12/07/2000, 12/07/2004, 02/16/2009,
09/05/2010, 03/17/2012, 10/31/2015, 11/12/2018,
10/05/2020, 10/23/2022

3745-51-07

Residues of hazardous waste in empty containers.**(A) Hazardous waste remaining in a container.**

- (1) Any hazardous waste remaining in either an empty container or an inner liner removed from an empty container, as described in paragraph (B) of this rule, is not subject to regulation under rules 3745-50-40 to 3745-50-235 or Chapters 3745-51, 3745-52, 3745-53, 3745-54 to 3745-57, 3745-65 to 3745-69, 3745-205, 3745-256, 3745-266, or 3745-270 of the Administrative Code or to the requirement to notify Ohio EPA or U.S. EPA of regulated waste activity.
- (2) Any hazardous waste in either a container that is not empty or an inner liner removed from a container that is not empty, as described in paragraph (B) of this rule, is subject to regulation under ~~rules 3745-50-40 to 3745-50-235 and~~ Chapters ~~3745-50,~~ 3745-51, 3745-52, 3745-53, 3745-54 to 3745-57, 3745-65 to 3745-69, 3745-205, 3745-256, 3745-266, and 3745-270 of the Administrative Code and to the requirement to notify Ohio EPA or U.S. EPA of regulated waste activity.

(B) A container that has held any hazardous waste is empty when the following criteria are met:

- (1) A container or an inner liner removed from a container that has held any hazardous waste, except a waste that is a compressed gas or that is identified as an acute hazardous waste in rule 3745-51-31 or paragraph (E) of rule 3745-51-33 of the Administrative Code, is empty if:
 - (a) All wastes have been removed that can be removed using the practices commonly employed to remove materials from that type of container, e.g., pouring, pumping, and aspirating; and
 - (b) No more than 2.5 centimeters (one inch) of residue remain on the bottom of the container or inner liner; or
 - (c) Considering the capacity of the container, the following is met:
 - (i) No more than three per cent by weight of the total capacity of the container remains in the container or inner liner if the container is less than or equal to one hundred nineteen gallons in size; or
 - (ii) No more than 0.3 per cent by weight of the total capacity of the container remains in the container or inner liner if the container is greater than one hundred nineteen gallons in size.

- (2) A container that has held a hazardous waste that is a compressed gas is empty when the pressure in the container approaches atmospheric.
- (3) A container or an inner liner removed from a container that has held an acute hazardous waste listed in rule 3745-51-31 or paragraph (E) of rule 3745-51-33 of the Administrative Code is empty if one of the following is met:
 - (a) The container or inner liner has been triple rinsed using a solvent capable of removing the commercial chemical product or manufacturing chemical intermediate.
 - (b) The container or inner liner has been cleaned by another method that has been shown in the scientific literature, or by tests conducted by the generator, to achieve equivalent removal.
 - (c) In the case of a container, the inner liner that prevented contact of the commercial chemical product or manufacturing chemical intermediate with the container, has been removed.

(C) Containers of hazardous waste pharmaceuticals are subject to rule 3745-266-507 of the Administrative Code to determine when the containers are considered empty, in lieu of this rule, except as provided by paragraphs (C) and (D) of rule 3745-266-507 of the Administrative Code.

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12/30/1989, 12/07/2000, 12/07/2004, 02/16/2009,
03/17/2012, 02/12/2018

3745-51-08

PCB wastes regulated under the Toxic Substances Control Act.

The disposal of polychlorinated byphenyl (PCB)-containing dielectric fluids and electric equipment containing such fluids authorized for use and regulated under 40 CFR Part 761 and that are hazardous only because ~~they~~such items fail the test for the toxicity characteristic leaching procedure (EPA hazardous waste numbers D018 to D043 only) are exempt from regulation under Chapters 3745-51, 3745-52, 3745-53, 3745-54 to 3745-57, 3745-65 to 3745-69, 3745-205, 3745-256, and 3745-270 of the Administrative Code, rules 3745-50-40 to 3745-50-235 of the Administrative Code, and the requirement to notify Ohio EPA or U.S. EPA of regulated waste activity.

[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."]

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10/31/2015

3745-51-09

Requirements for universal waste.

The wastes listed in this rule are exempt from regulation under Chapters 3745-52, 3745-53, 3745-54 to 3745-57, 3745-65 to 3745-69, 3745-205, 3745-256, 3745-266, and 3745-270 of the Administrative Code and rules 3745-50-40 to 3745-50-235 of the Administrative Code, except as specified in Chapter 3745-273 of the Administrative Code and, therefore are not fully regulated as hazardous waste. The following wastes listed in this rule are subject to regulation under Chapter 3745-273 of the Administrative Code:

- (A) Batteries as described in rule 3745-273-02 of the Administrative Code;
- (B) Pesticides as described in rule 3745-273-03 of the Administrative Code;
- (C) Mercury-containing equipment as described in rule 3745-273-04 of the Administrative Code;
- (D) Lamps as described in rule 3745-273-05 of the Administrative Code;
- (E) Aerosol cans as described in rule 3745-273-06 of the Administrative Code;
- ~~(E)~~(F) Ohio-specific universal wastes, which include the following:
 - ~~(1) Aerosol containers as described in paragraph (A) of rule 3745-273-89 of the Administrative Code.~~
 - ~~(2)~~(1) Antifreeze as described in ~~paragraph (B) of rule 3745-273-89 of the Administrative Code;~~ and
 - ~~(3)~~(2) Paint and paint-related waste as described in ~~paragraph (C) of rule 3745-273-89 of the Administrative Code.~~

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Five Year Review (FYR) Dates: 7/20/2022 and 07/20/2027

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09/05/2010, 12/21/2017

3745-51-10

Criteria for identifying the characteristics of hazardous waste.

The director shall identify and define a characteristic of hazardous waste in rules 3745-51-20 to 3745-51-24 of the Administrative Code only upon determining that:

(A) A waste that exhibits the characteristic may:

- (1) Cause, or significantly contribute to, an increase in mortality or an increase in serious, irreversible, or incapacitating reversible illness; or
- (2) Pose a substantial present or potential hazard to human health or the environment when ~~it~~the waste is improperly treated, stored, transported, disposed ~~of~~ or otherwise managed; and

(B) The characteristic can be:

- (1) Measured by an available standardized test method which is reasonably within the capability of generators of waste or private sector laboratories that are available to serve generators of waste; or
- (2) Reasonably detected by generators of waste through knowledge of the wastes.

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10/20/1998, 10/31/2015

3745-51-11

Criteria for listing hazardous waste.

(A) The director ~~will~~shall list a waste as a hazardous waste only upon determining that the waste meets one of the following criteria:

- (1) The waste exhibits any of the characteristics of hazardous waste identified in rules 3745-51-20 to 3745-51-24 of the Administrative Code.
- (2) The waste has been found to be fatal to humans in low doses or, in the absence of data on human toxicity, the waste has been shown in studies to have an oral LD50 toxicity (rat) of less than fifty milligrams per kilogram, an inhalation LC50 toxicity (rat) of less than two milligrams per liter, or a dermal LD50 toxicity (rabbit) of less than two hundred milligrams per kilogram or is otherwise capable of causing or significantly contributing to an increase in serious irreversible, or incapacitating reversible illness. (Wastes listed in accordance with these criteria ~~will~~shall be designated acute hazardous wastes.)

[Comment: As used in this paragraph, LD (lethal dosage) and LC (lethal concentration) are standard measures of toxicity. A LD50 dosage, and a LC50 concentration, are fatal to fifty per cent of the test subjects.]

- (3) The waste contains any of the toxic constituents listed in the appendix to this rule and, after considering the following factors, the director concludes that the waste is capable of posing a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed:
 - (a) The nature of the toxicity presented by the constituent.
 - (b) The concentration of the constituent in the waste.
 - (c) The potential of the constituent or any toxic degradation product of the constituent to migrate from the waste into the environment under the types of improper management considered in paragraph (A)(3)(g) of this rule.
 - (d) The persistence of the constituent or any toxic degradation product of the constituent.

- (e) The potential for the constituent or any toxic degradation product of the constituent to degrade into nonharmful constituents and the rate of degradation.
 - (f) The degree to which the constituent or any degradation product of the constituent bioaccumulates in ecosystems.
 - (g) The plausible types of improper management to which the waste could be subjected.
 - (h) The quantities of the waste generated at individual generation sites or on a regional or national basis.
 - (i) The nature and severity of the human health and environmental damage that has occurred as a result of the improper management of wastes containing the constituent.
 - (j) Action taken by other governmental agencies or regulatory programs based on the health or environmental hazard posed by the waste or waste constituent.
 - (k) Such other factors as may be appropriate. Substances ~~will~~shall be listed in the appendix to this rule only if those substances have been shown in scientific studies to have toxic, carcinogenic, mutagenic or teratogenic effects on humans or other life forms. (Wastes listed in accordance with these criteria ~~will~~shall be designated toxic wastes.)
- (B) The director may list classes or types of waste as hazardous waste if the director has reason to believe that individual wastes, within the class or type of waste, typically or frequently are hazardous under the definition of "hazardous waste" in Section 1004(5) of the Resource Conservation and Recovery Act.
- (C) The director ~~will~~shall use the criteria for listing specified in this rule to establish the exclusion limits referred to in rule ~~3745-51-05~~3745-52-13 of the Administrative Code.
- (D) The director shall not list any waste that the administrator delisted or excluded by an amendment to the federal regulations, any waste that the administrator declined to list by publishing a denial of a rulemaking petition or by withdrawal of a proposed listing in the Federal Register after May 18, 1980, or any waste oil or polychlorinated biphenyl not listed by the administrator.

[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."]

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10/31/2015

Appendix to rule 3745-51-11 of the Administrative Code

HAZARDOUS CONSTITUENTS

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
A2213	Ethanimidothioic acid, 2-(dimethylamino)-N-hydroxy-2-oxo-, methyl ester	30558-43-1	U394
Acetonitrile	Same	75-05-8	U003
Acetophenone	Ethanone, 1-phenyl-	98-86-2	U004
2-Acetylaminefluorone	Acetamide, N-9H-fluoren-2-yl-	53-96-3	U005
Acetyl chloride	Same	75-36-5	U006
1-Acetyl-2-thiourea	Acetamide, N-(aminothioxomethyl)-	591-08-2	P002
Acrolein	2-Propenal	107-02-8	P003
Acrylamide	2-Propenamamide	79-06-1	U007
Acrylonitrile	2-Propenenitrile	107-13-1	U009
Aflatoxins	Same	1402-68-2	----
Aldicarb	Propanal, 2-methyl-2-(methylthio)-, O-[(methylamino)carbonyl] oxime	116-06-3	P070
Aldicarb sulfone	Propanal, 2-methyl-2-(methylsulfonyl)-, O-[(methylamino)carbonyl] oxime	1646-88-4	P203
Alrin	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-, (1alpha,4alpha,4abeta,5alpha,8alpha,8abeta)-	309-00-2	P004
Allyl alcohol	2-Propen-1-ol	107-18-6	P005
Allyl chloride	1-Propane, 3-chloro	107-05-1	----
Aluminum phosphide	Same	20859-73-8	P006
4-Aminobiphenyl	[1,1'-Biphenyl]-4-amine	92-67-1	----
5-(Aminomethyl)-3-isoxazolol	3(2H)-Isoxazolone, 5-(aminomethyl)-	2763-96-4	P007
4-Aminopyridine	4-Pyridinamine	504-24-5	P008
Amitrole	1H-1,2,4-Triazol-3-amine	61-82-5	U011

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Ammonium vanadate	Vanadic acid, ammonium salt	7803-55-6	P119
Aniline	Benzenamine	62-53-3	U012
o-Anisidine (2-methoxyaniline)	Benzenamine, 2-Methoxy-	90-04-0	----
Antimony	Same	7440-36-0	----
Antimony compounds, N.O.S.*	-----	-----	----
Aramite	Sulfurous acid, 2-chloroethyl 2-[4-(1,1-dimethylethyl)phenoxy]-1-methylethyl ester	140-57-8	----
Arsenic	Same	7440-38-2	----
Arsenic compounds, N.O.S.*	-----	-----	----
Arsenic acid	Arsenic acid H_3AsO_4	7778-39-4	P010
Arsenic pentoxide	Arsenic oxide As_2O_5	1303-28-2	P011
Arsenic trioxide	Arsenic oxide As_2O_3	1327-53-3	P012
Auramine	Benzenamine, 4,4'-carbonimidoylbis[N,N-dimethyl	492-80-8	U014
Azaserine	L-Serine, diazoacetate (ester)	115-02-6	U015
Barban	Carbamic acid, (3-chlorophenyl)-, 4-chloro-2-butynyl ester	101-27-9	U280
Barium	Same	7440-39-3	----
Barium compounds, N.O.S.*	-----	-----	----
Barium cyanide	Same	542-62-1	P013
Bendiocarb	1,3-Benzodioxol-4-ol, 2,2-dimethyl-, methyl carbamate	22781-23-3	U278
Bendiocarb phenol	1,3-Benzodioxol-4-ol, 2,2-dimethyl-	22961-82-6	U364

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Benomyl	Carbamic acid, [1-[(butylamino)carbonyl]-1Hbenzimidazol-2-yl]-, methyl ester	17804-35-2	U271
Benz[c]acridine	Same	225-51-4	U016
Benz[a]anthracene	Same	56-55-3	U018
Benzal chloride	Benzene, (dichloromethyl)-	98-87-3	U017
Benzene	Same	71-43-2	U019
Benzene arsonic acid	Arsonic acid, phenyl-	98-05-5	----
Benzidine	[1,1'-Biphenyl]-4,4'-diamine	92-87-5	U021
Benzo[b]fluoranthene	Benz[e]acephenanthrylene	205-99-2	----
Benzo[j]fluoranthene	Same	205-82-3	----
Benzo(k)fluoranthene	Same	207-08-9	----
Benzo[a]pyrene	Same	50-32-8	U022
p-Benzoquinone	2,5-Cyclohexadiene-1,4-dione	106-51-4	U197
Benzotrichloride	Benzene, (trichloromethyl)-	98-07-7	U023
Benzyl chloride	Benzene, (chloromethyl)-	100-44-7	P028
Beryllium powder	Same	7440-41-7	P015
Beryllium compounds, N.O.S.*	-----	-----	----
Bis(pentamethylene)-thiuram tetrasulfide	Piperidine, 1,1'-(tetrathiodicarbonothioyl)-bis-	120-54-7	----
Butylate	Carbamothioic acid, bis(2-methylpropyl)-, S-ethyl ester	2008-41-5	----
Bromoacetone	2-Propanone, 1-bromo-	598-31-2	P017
Bromoform	Methane, tribromo-	75-25-2	U225
4-Bromophenyl phenyl ether	Benzene, 1-bromo-4-phenoxy-	101-55-3	U030
Brucine	Strychnidin-10-one, 2,3-dimethoxy-	357-57-3	P018

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Butyl benzyl phthalate	1,2-Benzenedicarboxylic acid, butyl phenylmethyl ester	85-68-7	----
Cacodylic acid	Arsinic acid, dimethyl-	75-60-5	U136
Cadmium	Same	7440-43-9	----
Cadmium compounds, N.O.S.*	-----	-----	----
Calcium chromate	Chromic acid H ₂ CrO ₄ , calcium salt	13765-19-0	U032
Calcium cyanide	Calcium cyanide Ca(CN) ₂	592-01-8	P021
Carbaryl	1-Naphthalenol, methylcarbamate	63-25-2	U279
Carbendazim	Carbamic acid, 1H-benzimidazol-2-yl, methyl ester	10605-21-7	U372
Carbofuran	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl-, methylcarbamate	1563-66-2	P127
Carbofuran phenol	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl-	1563-38-8	U367
Carbon disulfide	Same	75-15-0	P022
Carbon oxyfluoride	Carbonic difluoride	353-50-4	U033
Carbon tetrachloride	Methane, tetrachloro-	56-23-5	U211
Carbosulfan	Carbamic acid, [(dibutylamino)thio] methyl-, 2,3-dihydro-2,2-dimethyl-7-benzofuranyl ester	55285-14-8	P189
Chloral	Acetaldehyde, trichloro-	75-87-6	U034
Chlorambucil	Benzenebutanoic acid, 4-[bis(2-chloroethyl)amino]-	305-03-3	U035
Chlordane	1,2,4,5,6,7,8,8-Octachloro-2,3,3a,4,7,7a-hexahydro-4,7-methano-1H-indene	57-74-9	U036
Chlordane (alpha and gamma isomers)	-----	-----	U036
Chlorinated benzenes, N.O.S.*	-----	-----	----

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Chlorinated ethane, N.O.S.*	-----	-----	----
Chlorinated fluorocarbons, N.O.S.*	-----	-----	----
Chlorinated naphthalene, N.O.S.*	-----	-----	----
Chlorinated phenol, N.O.S.*	-----	-----	----
Chlornaphazin	Naphthalenamine, N,N'-bis(2-chloroethyl)-	494-03-1	U026
Chloroacetaldehyde	Acetaldehyde, chloro-	107-20-0	P023
Chloroalkyl ethers, N.O.S.*	-----	-----	----
p-Chloroaniline	Benzenamine, 4- chloro-	106-47-8	P024
Chlorobenzene	Benzene, chloro-	108-90-7	U037
Chlorobenzilate	Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy-, ethyl ester	510-15-6	U038
p-Chloro-m-cresol	Phenol, 4-chloro-3-methyl-	59-50-7	U039
2-Chloroethyl vinyl ether	Ethene, (2-chloroethoxy)-	110-75-8	U042
Chloroform	Methane, trichloro-	67-66-3	U044
Chloromethyl methyl ether	Methane, chloromethoxy-	107-30-2	U046
beta-Chloronaphthalene	Naphthalene, 2-chloro-	91-58-7	U047
o-Chlorophenol	Phenol, 2-chloro-	95-57-8	U048
1-(o-Chlorophenyl) thiourea	Thiourea, (2-chlorophenyl)-	5344-82-1	P026
Chloroprene	1,3-Butadiene, 2-chloro-	126-99-8	----
3-Chloropropionitrile	Propanenitrile, 3-chloro-	542-76-7	P027
Chromium	Same	7440-47-3	----

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Chromium compounds, N.O.S.*	-----	-----	----
Chrysene	Same	218-01-9	U050
Citrus red No. 2	2-Naphthalenol, 1-[(2,5-dimethoxyphenyl)azo]-	6358-53-8	----
Coal tar creosote	Same	8007-45-2	----
Copper cyanide	Copper cyanide CuCN	544-92-3	P029
Copper dimethyldithiocarbamate	Copper, bis(dimethylcarbamo-dithioato-S,S')-	137-29-1	----
Creosote	Same	-----	U051
p-Cresidine	2-Methoxy-5-methylbenzenamine	120-71-8	----
Cresol (Cresylic acid)	Phenol, methyl-	1319-77-3	U052
Crotonaldehyde	2-Butenal	4170-30-3	U053
m-Cumenyl methylcarbamate	Phenol, 3-(methylethyl)-, methyl carbamate	64-00-6	P202
Cyanides (soluble salts and complexes) N.O.S.*	-----	-----	P030
Cyanogen	Ethanedinitrile	460-19-5	P031
Cyanogen bromide	Cyanogen bromide (CN)Br	506-68-3	U246
Cyanogen chloride	Cyanogen chloride (CN)Cl	506-77-4	P033
Cycasin	beta-D-Glucopyranoside, (methyl-ONN-azoxy)methyl	14901-08-7	----
Cycloate	Carbamothioic acid, cyclohexylethyl-, S-ethyl ester	1134-23-2	----
2-Cyclohexyl-4,6-dinitrophenol	Phenol, 2-cyclohexyl-4,6-dinitro-	131-89-5	P034
Cyclophosphamide	2H-1,3,2-Oxazaphosphorin-2-amine, N,N-bis(2-chloroethyl)tetrahydro-,2-oxide	50-18-0	U058
2,4-D	Acetic acid, (2,4-dichlorophenoxy)-	94-75-7	U240

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
2,4-D, salts, esters	-----	-----	U240
Daunomycin	5,12-Naphthacenedione, 8-acetyl-10-[(3-amino-2,3,6-trideoxy-alpha-L-lyxohexopyranosyl)oxy]-7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-, (8S-cis)-	20830-81-3	U059
Dazomet	2H-1,3,5-thiadiazine-2-thione, tetrahydro-3,5-dimethyl	533-74-4	----
DDD	Benzene, 1,1'-(2,2-dichloroethylidene)bis[4-chloro-	72-54-8	U060
DDE	Benzene, 1,1'-(dichloroethenylidene)bis[4-chloro-	72-55-9	----
DDT	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro-	50-29-3	U061
Diallate	Carbamothioic acid, bis(1-methylethyl)-, -(2,3-dichloro-2-propenyl) ester	2303-16-4	U062
Dibenz[a,h]acridine	Same	226-36-8	----
Dibenz[a,j]acridine	Same	224-42-0	----
Dibenz[a,h]anthracene	Same	53-70-3	U063
7H-Dibenzo[c,g]carbazole	Same	194-59-2	----
Dibenzo[a,e]pyrene	Naphtho[1,2,3,4-def]chrysene	192-65-4	----
Dibenzo[a,h]pyrene	Dibenzo[b,def]chrysene	189-64-0	----
Dibenzo[a,i]pyrene	Benzo[rst]pentaphene	189-55-9	U064
1,2-Dibromo-3-chloropropane	Propane, 1,2-dibromo-3-chloro-	96-12-8	U066
Dibutyl phthalate	1,2-Benzenedicarboxylic acid, dibutyl ester	84-74-2	U069
o-Dichlorobenzene	Benzene, 1,2-dichloro-	95-50-1	U070
m-Dichlorobenzene	Benzene, 1,3-dichloro-	541-73-1	U071
p-Dichlorobenzene	Benzene, 1,4-dichloro-	106-46-7	U072
Dichlorobenzene, N.O.S.*	Benzene, dichloro-	25321-22-6	----

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
3,3'-Dichlorobenzidine	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dichloro-	91-94-1	U073
1,4-Dichloro-2-butene	2-Butene, 1,4-dichloro-	764-41-0	U074
Dichlorodifluoromethane	Methane, dichlorodifluoro-	75-71-8	U075
Dichloroethylene, N.O.S.*	Dichloroethylene	25323-30-2	----
1,1-Dichloroethylene	Ethene, 1,1-dichloro-	75-35-4	U078
1,2-Dichloroethylene	Ethene, 1,2-dichloro-, (E)-	156-60-5	U079
Dichloroethyl ether	Ethane, 1,1'-oxybis[2-chloro-	111-44-4	U025
Dichloroisopropyl ether	Propane, 2,2'-oxybis[2-chloro-	108-60-1	U027
Dichloromethoxy ethane	Ethane, 1,1'-[methylenebis(oxy)]bis[2-chloro-	111-91-1	U024
Dichloromethyl ether	Methane, oxybis[chloro-	542-88-1	P016
2,4-Dichlorophenol	Phenol, 2,4-dichloro-	120-83-2	U081
2,6-Dichlorophenol	Phenol, 2,6-dichloro-	87-65-0	U082
Dichlorophenylarsine	Arsonous dichloride, phenyl-	696-28-6	P036
Dichloropropane, N.O.S.*	Propane, dichloro-	26638-19-7	----
Dichloropropanol, N.O.S.*	Propanol, dichloro-	26545-73-3	----
Dichloropropene, N.O.S.*	1-Propene, dichloro-	26952-23-8	----
1,3-Dichloropropene	1-Propene, 1,3-dichloro-	542-75-6	U084
Dieldrin	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7, 7a-octahydro-, (1aalpha,2beta,2aalpha, 3beta,6beta,6aalpha,7beta,7aalpha)-	60-57-1	P037
1,2:3,4-Diepoxybutane	2,2'-Bioxirane	1464-53-5	U085
Diethylarsine	Arsine, diethyl-	692-42-2	P038
Diethylene glycol, dicarbamate	Ethanol, 2,2'-oxybis-, dicarbamate	5952-26-1	U395
1,4-Diethyleneoxide	1,4-Dioxane	123-91-1	U108

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Diethylhexyl phthalate	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester	117-81-7	U028
N,N'-Diethylhydrazine	Hydrazine, 1,2-diethyl-	1615-80-1	U086
O,O-Diethyl S-methyldithiophosphate	Phosphorodithioic acid, O,O-diethyl S-methyl ester	3288-58-2	U087
Diethyl-p-nitrophenyl phosphate	Phosphoric acid, diethyl 4-nitrophenyl ester	311-45-5	P041
Diethyl phthalate	1,2-Benzenedicarboxylic acid, diethyl ester	84-66-2	U088
O,O-Diethyl O-pyrazinyl phosphorothioate	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester	297-97-2	P040
Diethylstilbesterol	Phenol, 4,4'-(1,2-diethyl-1,2-ethenediyl)bis-(E)-	56-53-1	U089
Dihydrosafrole	1,3-Benzodioxole, 5-propyl-	94-58-6	U090
Diisopropylfluoro phosphate (DFP)	Phosphorofluoridic acid bis(1-methylethyl) ester	55-91-4	P043
Dimethoate	Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl] ester	60-51-5	P044
3,3'-Dimethoxybenzidine	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethoxy-	119-90-4	U091
p-Dimethylaminoazobenzene	Benzenamine, N,N-dimethyl-4-(phenylazo)-	60-11-7	U093
2,4-Dimethylaniline (2,4-xylidine)	Benzenamine, 2,4-dimethyl-	95-68-1	----
7,12-Dimethylbenz[a]anthracene	Benz[a]anthracene, 7,12-dimethyl-	57-97-6	U094
3,3'-Dimethylbenzidine	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl-	119-93-7	U095
Dimethylcarbamoyl chloride	Carbamic chloride, dimethyl-	79-44-7	U097
1,1-Dimethylhydrazine	Hydrazine, 1,1-dimethyl-	57-14-7	U098
1,2-Dimethylhydrazine	Hydrazine, 1,2-dimethyl-	540-73-8	U099

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
alpha,alpha-Dimethyl phenethylamine	Benzeneethanamine, alpha,alpha-dimethyl-	122-09-8	P046
2,4-Dimethylphenol	Phenol, 2,4-dimethyl-	105-67-9	U101
Dimethyl phthalate	1,2-Benzenedicarboxylic acid, dimethyl ester	131-11-3	U102
Dimethyl sulfate	Sulfuric acid, dimethyl ester	77-78-1	U103
Dimetilan	Carbamic acid, dimethyl-, 1-[(dimethylamino)carbonyl]-5-methyl-1-H-pyrazol-3-yl ester	644-64-4	P191
Dinitrobenzene, N.O.S.*	Benzene, dinitro-	25154-54-5	----
4,6-Dinitro-o-cresol	Phenol, 2-methyl-4,6-dinitro-	534-52-1	P047
4,6-Dinitro-o-cresol salts	-----	-----	P047
2,4-Dinitrophenol	Phenol, 2,4-dinitro-	51-28-5	P048
2,4-Dinitrotoluene	Benzene, 1-methyl-2,4-dinitro-	121-14-2	U105
2,6-Dinitrotoluene	Benzene, 2-methyl-1,3-dinitro-	606-20-2	U106
Dinoseb	Phenol, 2-(1-methylpropyl)-4,6-dinitro-	88-85-7	P020
Di-n-octyl phthalate	1,2-Benzenedicarboxylic acid, dioctyl ester	117-84-0	U017
Diphenylamine	Benzenamine, N-phenyl-	122-39-4	----
1,2-Diphenylhydrazine	Hydrazine, 1,2-diphenyl-	122-66-7	U109
Di-n-propylnitrosamine	1-Propanamine, N-nitroso-N-propyl-	621-64-7	U111
Disulfiram	Thioperoxydicarbonic diamide, tetraethyl	97-77-8	----
Disulfoton	Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl] ester	298-04-4	P039
Dithiobiuret	Thioimidodicarbonic diamide [(H ₂ N)C(S)] ₂ NH	541-53-7	P049
Endosulfan	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide	115-29-7	P050

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Endothall	7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid	145-73-3	P088
Endrin	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-,(1aalpha,2beta,2abeta,3alpha,6alpha,6abeta,7beta,7aalpha)-	72-20-8	P051
Endrin metabolites	-----	-----	P051
Epichlorohydrin	Oxirane, (chloromethyl)-	106-89-8	U041
Epinephrine	1,2-Benzenediol, 4-[1-hydroxy-2-(methylamino)ethyl]-,(R)-	51-43-4	P042
EPTC	Carbamothioic acid, dipropyl-, S-ethyl ester	759-94-4	----
Ethyl carbamate (urethane)	Carbamic acid, ethyl ester	51-79-6	U238
Ethyl cyanide	Propanenitrile	107-12-0	P101
Ethyl ziram	Zinc, bis(diethylcarbamodithioato-S,S')-	14324-55-1	----
Ethylenebisdithiocarbamic acid	Carbamodithioic acid, 1,2-ethanediylbis-	111-54-6	U114
Ethylenebisdithiocarbamic acid, salts and esters	-----	-----	U114
Ethylene dibromide	Ethane, 1,2-dibromo-	106-93-4	U067
Ethylene dichloride	Ethane, 1,2-dichloro-	107-06-2	U077
Ethylene glycol monoethyl ether	Ethanol, 2-ethoxy-	110-80-5	U359
Ethyleneimine	Aziridine	151-56-4	P054
Ethylene oxide	Oxirane	75-21-8	U115
Ethylenethiourea	2-Imidazolidinethione	96-45-7	U116
Ethylidene dichloride	Ethane, 1,1-dichloro-	75-34-3	U076
Ethyl methacrylate	2-Propenoic acid, 2-methyl-, ethyl ester	97-63-2	U118
Ethyl methanesulfonate	Methanesulfonic acid, ethyl ester	62-50-0	U119

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Famphur	Phosphorothioic acid, O-[4-[(dimethylamino)sulfonyl]phenyl] O,O-dimethyl ester	52-85-7	P097
Ferbam	Iron, tris(dimethylcarbamodithioat-S,S')-,	14484-64-1	----
Fluoranthene	Same	206-44-0	U120
Fluorine	Same	7782-41-4	P056
Fluoroacetamide	Acetamide, 2-fluoro-	640-19-7	P057
Fluoroacetic acid, sodium salt	Acetic acid, fluoro-, sodium salt	62-74-8	P058
Formaldehyde	Same	50-00-0	U122
Formetanate hydrochloride	Methanimidamide, N,N-dimethyl-N'- [3-[(methylamino)carbonyl] oxy]phenyl]-, monohydrochloride	23422-53-9	P198
Formic acid	Same	64-18-6	U123
Formparanate	Methanimidamide, N,N-dimethyl-N'- [2-methyl-4-[(methylamino)carbonyl] oxy]phenyl]-	17702-57-7	P197
Glycidylaldehyde	Oxiranecarboxyaldehyde	765-34-4	U126
Halomethanes, N.O.S.*	-----	-----	----
Heptachlor	4,7-Methano-1H-indene, 1,4,5,6,7,8,8- heptachloro-3a,4,7,7a-tetrahydro-	76-44-8	P059
Heptachlor epoxide	2,5-Methano-2H-indeno[1,2-b]oxirene, 2,3,4,5,6,7,7-heptachloro-1a,1b,5,5a,6,6a- hexahydro-, (1aalpha,1bbeta,2alpha, 5alpha,5abeta,6beta,6aalpha)-	1024-57-3	----
Heptachlor epoxide (alpha, beta, and gamma isomers)	-----	-----	----
Heptachlorodibenzofurans	-----	-----	----
Heptachlorodibenzo-p-dioxins	-----	-----	----
Hexachlorobenzene	Benzene, hexachloro-	118-74-1	U127

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Hexachlorobutadiene	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-	87-68-3	U128
Hexachlorocyclopentadiene	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-	77-47-4	U130
Hexachlorodibenzo-p-dioxins	-----	-----	----
Hexachlorodibenzofurans	-----	-----	----
Hexachloroethane	Ethane, hexachloro-	67-72-1	U131
Hexachlorophene	Phenol, 2,2'-methylenebis[3,4,6-trichloro-	70-30-4	U132
Hexachloropropene	1-Propene, 1,1,2,3,3,3-hexachloro-	1888-71-7	U243
Hexaethyltetraphosphate	Tetraphosphoric acid, hexaethyl ester	757-58-4	P062
Hydrazine	Same	302-01-2	U133
Hydrogen cyanide	Hydrocyanic acid	74-90-8	P063
Hydrogen fluoride	Hydrofluoric acid	7664-39-3	U134
Hydrogen sulfide	Hydrogen sulfide H ₂ S	7783-06-4	U135
Indeno[1,2,3-cd]pyrene	Same	193-39-5	U137
3-Iodo-2-propynyl n-butylcarbamate	Carbamic acid, butyl-, 3-iodo-2-propynyl ester	55406-53-6	----
Isobutyl alcohol	1-Propanol, 2-methyl-	78-83-1	U140
Isodrin	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-, (1alpha,4alpha,4abeta,5beta,8beta,8abeta)-	465-73-6	P060
Isolan	Carbamic acid, dimethyl-, 3-methyl-1-(1-methylethyl)-1H-pyrazol-5-yl ester	119-38-0	P192
Isosafrole	1,3-Benzodioxole, 5-(1-propenyl)-	120-58-1	U141
Kepone	1,3,4-Metheno-2H-cyclobuta[cd]pentalen-2-one, 1,1a,3,3a,4,5,5,5a,5b,6-decachlorooctahydro-	143-50-0	U142

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Lasiocarpine	2-Butenoic acid, 2-methyl-,7- [[2,3-dihydroxy-2-(1-methoxyethyl)-3- methyl-1-oxobutoxy]methyl]-2,3,5,7a- tetrahydro-1H-pyrrolizin-1-yl ester, [1S-[1alpha(Z),7-(2S*,3R*),7aalpha]]-	303-34-4	U143
Lead	Same	7439-92-1	----
Lead compounds, N.O.S.*	-----	-----	----
Lead acetate	Acetic acid, lead(2+) salt	301-04-2	U144
Lead phosphate	Phosphoric acid, lead(2+) salt (2:3)	7446-27-7	U145
Lead subacetate	Lead, bis(acetato-O)-tetrahydroxytri-	1335-32-6	U146
Lindane	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1alpha,2alpha,3beta,4alpha,5alpha, 6beta)-	58-89-9	U129
Maleic anhydride	2,5-Furandione	108-31-6	U147
Maleic hydrazide	3,6-Pyridazinedione, 1,2-dihydro-	123-33-1	U148
Malononitrile	Propanedinitrile	109-77-3	U149
Manganese dimethyldithiocarbamate	Manganese, bis(dimethylcarbomodithioato-S,S')-	15339-36-3	P196
Melphalan	L-Phenylalanine, 4-[bis(2-chloroethyl)aminol]-	148-82-3	U150
Mercury	Same	7439-97-6	U151
Mercury compounds, N.O.S.*	-----	-----	----
Mercury fulminate	Fulminic acid, mercury(2+) salt	628-86-4	P065
Metam sodium	Carbamodithioic acid, methyl-, monosodium salt	137-42-8	----
Methacrylonitrile	2-Propenenitrile, 2-methyl-	126-98-7	U152
Methapyrilene	1,2-Ethanediamine, N,N-dimethyl- N'-2-pyridinyl-N'-(2-thienylmethyl)-	91-80-5	U155
Methiocarb	Phenol, (3,5-dimethyl-4-(methylthio)-, methylcarbamate	2032-65-7	P199

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Methomyl	Ethanimidothioic acid, N-[[[(methylamino)carbonyl]oxy]-, methyl ester	16752-77-5	P066
Methoxychlor	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-methoxy-	72-43-5	U247
Methyl bromide	Methane, bromo-	74-83-9	U029
Methyl chloride	Methane, chloro-	74-87-3	U045
Methyl chlorocarbonate	Carbonochloridic acid, methyl ester	79-22-1	U156
Methyl chloroform	Ethane, 1,1,1-trichloro-	71-55-6	U226
3-Methylcholanthrene	Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-	56-49-5	U157
4,4'-Methylenebis (2-chloroaniline)	Benzenamine, 4,4'-methylenebis[2-chloro-	101-14-4	U158
Methylene bromide	Methane, dibromo-	74-95-3	U068
Methylene chloride	Methane, dichloro-	75-09-2	U080
Methyl ethyl ketone (MEK)	2-Butanone	78-93-3	U159
Methyl ethyl ketone peroxide	2-Butanone, peroxide	1338-23-4	U160
Methyl hydrazine	Hydrazine, methyl-	60-34-4	P068
Methyl iodide	Methane, iodo-	74-88-4	U138
Methyl isocyanate	Methane, isocyanato-	624-83-9	P064
2-Methylacetonitrile	Propanenitrile, 2-hydroxy-2-methyl-	75-86-5	P069
Methyl methacrylate	2-Propenoic acid, 2-methyl-, methyl ester	80-62-6	U162
Methylmethanesulfonate	Methanesulfonic acid, methyl ester	66-27-3	----
Methyl parathion	Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl) ester	298-00-0	P071
Methylthiouracil	4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-	56-04-2	U164

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Metolcarb	Carbamic acid, methyl-, 3-methylphenyl ester	1129-41-5	P190
Mexacarbate	Phenol, 4-(dimethylamino)-3,5-dimethyl-, methylcarbamate (ester)	315-18-4	P128
Mitomycin C	Azirino[2',3':3,4]pyrrolo[1,2-a]indole-4,7-dione,6-amino-8-[[aminocarbonyl]oxy]methyl]-1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5-methyl-, [1aS-(1aalpha,8beta,8aalpha,8balph)]-	50-07-7	U010
MNNG	Guanidine, N-methyl-N'-nitro-N-nitroso-	70-25-7	U163
Molinate	1H-Azepine-1-carbothioic acid, hexahydro-, S-ethyl ester	2212-67-1	----
Mustard gas	Ethane, 1,1'-thiobis[2-chloro-	505-60-2	----
Naphthalene	Same	91-20-3	U165
1,4-Naphthoquinone	1,4-Naphthalenedione	130-15-4	U166
alpha-Naphthylamine	1-Naphthalenamine	134-32-7	U167
beta-Naphthylamine	2-Naphthalenamine	91-59-8	U168
alpha-Naphthylthiourea	Thiourea, 1-naphthalenyl-	86-88-4	P072
Nickel	Same	7440-02-0	----
Nickel compounds, N.O.S.*	-----	-----	----
Nickel carbonyl	Nickel carbonyl Ni(CO) ₄ , (T-4)-	13463-39-3	P073
Nickel cyanide	Nickel cyanide Ni(CN) ₂	557-19-7	P074
Nicotine	Pyridine, 3-(1-methyl-2-pyrrolidinyl)-,(S)-	54-11-5	P075
Nicotine salts	-----	-----	P075
Nitric oxide	Nitrogen oxide NO	10102-43-9	P076
p-Nitroaniline	Benzenamine, 4-nitro-	100-01-6	P077
Nitrobenzene	Benzene, nitro-	98-95-3	U169

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Nitrogen dioxide	Nitrogen oxide NO ₂	10102-44-0	P078
Nitrogen mustard	Ethanamine, 2-chloro-N-(2-chloroethyl)-N-methyl-	51-75-2	----
Nitrogen mustard, hydrochloride salt	-----	-----	----
Nitrogen mustard N-oxide	Ethanamine, 2-chloro-N-(2-chloroethyl)- N-methyl-, N-oxide	126-85-2	----
Nitrogen mustard, n-oxide, hydrochloride salt	-----	-----	----
Nitroglycerin	1,2,3-Propanetriol, trinitrate	55-63-0	P081
p-Nitrophenol	Phenol, 4-nitro-	100-02-7	U170
2-Nitropropane	Propane, 2-nitro-	79-46-9	U171
Nitrosamines, N.O.S.*	-----	35576-91-1	----
N-Nitrosodi-n-butylamine	1-Butanamine, N-butyl-N-nitroso-	924-16-3	U172
N-Nitrosodiethanolamine	Ethanol, 2,2'-(nitrosoimino)bis-	1116-54-7	U173
N-Nitrosodiethylamine	Ethanamine, N-ethyl-N-nitroso-	55-18-5	U174
N-Nitrosodimethylamine	Methanamine, N-methyl-N-nitroso-	62-75-9	P082
N-Nitroso-N-ethylurea	Urea, N-ethyl-N-nitroso-	759-73-9	U176
N-Nitrosomethylethylamin e	Ethanamine, N-methyl-N-nitroso-	10595-95-6	----
N-Nitroso-N-methylurea	Urea, N-methyl-N-nitroso-	684-93-5	U177
N-Nitroso-N- methylurethane	Carbamic acid, methylnitroso-, ethyl ester	615-53-2	U178
N-Nitrosomethylvinylamin e	Vinylamine, N-methyl-N-nitroso-	4549-40-0	P084
N-Nitrosomorpholine	Morpholine, 4-nitroso-	59-89-2	----
N-Nitrosornicotine	Pyridine, 3-(1-nitroso-2-pyrrolidinyl)-,(S)-	16543-55-8	----
N-Nitrosopiperidine	Piperidine, 1-nitroso-	100-75-4	U179

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
N-Nitrosopyrrolidine	Pyrrolidine, 1-nitroso-	930-55-2	U180
N-Nitrososarcosine	Glycine, N-methyl-N-nitroso-	13256-22-9	----
5-Nitro-o-toluidine	Benzenamine, 2-methyl-5-nitro-	99-55-8	U181
Octachlorodibenzo-p-dioxin (OCDD)	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	3268-87-9	----
Octachlorodibenzofuran (OCDF)	1,2,3,4,6,7,8,9-Octachlorodibenzofuran	39001-02-0	----
Octamethylpyro phosphoramidate	Diphosphoramidate, octamethyl-	152-16-9	P085
Osmium tetroxide	Osmium oxide OsO ₄ , (T-4)-1,3,5-	20816-12-0	P087
Oxamyl	Ethanimidothioic acid, 2-(dimethylamino)- N-[[[(methylamino)carbonyl]oxy]-2-oxo-, methyl ester	23135-22-0	P194
Paraldehyde	Trioxane, 2,4,6-trimethyl-	123-63-7	U182
Parathion	Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester	56-38-2	P089
Pebulate	Carbamothioic acid, butylethyl-, S-propyl ester	1114-71-2	----
Pentachlorobenzene	Benzene, pentachloro-	608-93-5	U183
Pentachlorodibenzo-p-dioxins	-----	-----	----
Pentachlorodibenzofurans	-----	-----	----
Pentachloroethane	Ethane, pentachloro-	76-01-7	U184
Pentachloronitrobenzene (PCNB)	Benzene, pentachloronitro-	82-68-8	U185
Pentachlorophenol	Phenol, pentachloro-	87-86-5	See F027
Phenacetin	Acetamide, N-(4-ethoxyphenyl)-	62-44-2	U187
Phenol	Same	108-95-2	U188
Phenylenediamine	Benzenediamine	25265-76-3	----

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
1,2-Phenylenediamine	1,2-Benzenediamine	95-54-5	----
1,3-Phenylenediamine	1,3-Benzenediamine	108-45-2	----
Phenylmercury acetate	Mercury, (acetato-O)phenyl-	62-38-4	P092
Phenylthiourea	Thiourea, phenyl-	103-85-5	P093
Phosgene	Carbonic dichloride	75-44-5	P095
Phosphine	Same	7803-51-2	P096
Phorate	Phosphorodithioic acid, O,O-diethyl S-[(ethylthio)methyl] ester	298-02-2	P094
Phthalic acid esters, N.O.S.*	-----	-----	----
Phthalic anhydride	1,3-Isobenzofurandione	85-44-9	U190
Physostigmine	Pyrrolo[2,3-b]indol-5-01, 1,2,3,3a,8,8a-hexahydro- 1,3a,8-trimethyl-, methylcarbamate (ester),)3aS-cis)-	57-47-6	P204
Physostigmine salicylate	Benzoic acid, 2-hydroxy-, compd. with (3aS-cis)-1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethylpyrrolo[2,3-b]indol-5-yl methylcarbamate ester (1:1)	57-64-7	P188
2-Picoline	Pyridine, 2-methyl-	109-06-8	U191
Polychlorinated biphenyls, N.O.S.*	-----	-----	----
Potassium cyanide	Potassium cyanide K(CN)	151-50-8	P098
Potassium dimethyldithiocarbamate	Carbamodithioic acid, dimethyl, potassium salt	128-03-0	----
Potassium n-hydroxymethyl-n- methyl-dithiocarbamate	Carbamodithioic acid, (hydroxymethyl)methyl-, monopotassium salt	51026-28-9	----
Potassium n-methyldithiocarbamate	Carbamodithioic acid, methyl-monopotassium salt	137-41-7	----
Potassium pentachlorophenate	Pentachlorophenol, potassium salt	7778736	None

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Potassium silver cyanide	Argentate(1-), bis(cyano-C)-, potassium	506-61-6	P099
Promecarb	Phenol, 3-methyl-5-(1-methylethyl)-, methyl carbamate	2631-37-0	P201
Pronamide	Benzamide,5-dichloro-N-(1,1-dimethyl-2-propynyl)-	23950-58-5	U192
1,3-Propane sultone	1,2-Oxathiolane, 2,2-dioxide	1120-71-4	U193
Propham	Carbamic acid, phenyl-, 1-methylethyl ester	122-42-9	U373
Propoxur	Phenol, 2-(1-methylethoxy)-, methylcarbamate	114-26-1	U411
n-Propylamine	1-Propanamine	107-10-8	U194
Propargyl alcohol	2-Propyn-1-ol	107-19-7	P102
Propylene dichloride	propane, 1,2-dichloro-	78-87-5	U083
1,2-Propylenimine	Aziridine, 2-methyl-	75-55-8	P067
Propylthiouracil	4(1H)-Pyrimidinone, 2,3-dihydro-6-propyl-2-thioxo-	51-52-5	----
Prosulfocarb	Carbamothioic acid, dipropyl-, S-(phenylmethyl) ester	52888-80-9	U387
Pyridine	Same	110-86-1	U196
Reserpine	Yohimban-16-carboxylic acid, 1,17-dimethoxy- 18-[(3,4,5-trimethoxybenzoyl)oxy]-,methyl ester, (3beta,16beta,17alpha,18beta,20alpha)-	50-55-5	U200
Resorcinol	1,3-Benzenediol	108-46-3	U201
Safrole	1,3-Benzodioxole, 5-(2-propenyl)-	94-59-7	U203
Selenium	Same	7782-49-2	----
Selenium compounds, N.O.S.*	-----	-----	----
Selenium dioxide	Selenious acid	7783-00-8	U204
Selenium sulfide	Selenium sulfide SeS ₂	7488-56-4	U205

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Selenium, tetrakis (dimethyl-dithiocarbamate)	Carbamodithioic acid, dimethyl-, tetraanhydrosulfide with orthothioselenious acid	144-34-3	----
Selenourea	Same	630-10-4	P103
Silver	Same	7440-22-4	----
Silver compounds, N.O.S.*	-----	-----	----
Silver cyanide	Silver cyanide Ag(CN)	506-64-9	P104
Silvex (2,4,5-TP)	Propanoic acid, 2-(2,4,5-trichlorophenoxy)-	93-72-1	See F027
Sodium cyanide	Sodium cyanide Na(CN)	143-33-9	P106
Sodium dibutyldithiocarbamate	Carbamodithioic acid, dibutyl-, sodium salt	136-30-1	----
Sodium diethyldithiocarbamate	Carbamodithioic acid, diethyl-, sodium salt	148-18-5	----
Sodium dimethyldithiocarbamate	Carbamodithioic acid, dimethyl-, sodium salt	128-04-1	----
Sodium pentachlorophenate	Pentachlorophenol, sodium salt	131522	None
Streptozotocin	D-Glucose, 2-deoxy-2-[[[(methylnitrosoamino)carbonyl]amino]-	18883-66-4	U206
Strychnine	Strychnidin-10-one	57-24-9	P108
Strychnine salts	-----	-----	P108
Sulfallate	Carbamodithioic acid, diethyl-, 2-chloro-2-propenyl ester	95-06-7	----
TCDD	Dibenzo[b,e][1,4]dioxin, 2,3,7,8-tetrachloro-	1746-01-6	----
Tetrabutylthiuram disulfide	Thioperoxydicarbonic diamide, tetrabutyl	1634-02-2	----
1,2,4,5-Tetrachlorobenzene	Benzene, 1,2,4,5-tetrachloro-	95-94-3	U207
Tetrachlorodibenzo-p-dioxins	-----	-----	----
Tetrachlorodibenzofurans	-----	-----	----

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Tetrachloroethane, N.O.S.*	Ethane, tetrachloro-, N.O.S.	25322-20-7	----
1,1,1,2-Tetrachloroethane	Ethane, 1,1,1,2-tetrachloro-	630-20-6	U208
1,1,2,2-Tetrachloroethane	Ethane, 1,1,2,2-tetrachloro-	79-34-5	U209
Tetrachloroethylene	Ethene, tetrachloro-	127-18-4	U210
2,3,4,6-Tetrachlorophenol	Phenol, 2,3,4,6-tetrachloro-	58-90-2	See F027
2,3,4,6-Tetrachlorophenol, potassium salt	Same	53535276	None
2,3,4,6-Tetrachlorophenol, sodium salt	Same	25567559	None
Tetraethyldithiopyro phosphate	Thiodiphosphoric acid, tetraethyl ester	3689-24-5	P109
Tetraethyl lead	Plumbane, tetraethyl-	78-00-2	P110
Tetraethyl pyrophosphate	Diphosphoric acid, tetraethyl ester	107-49-3	P111
Tetramethylthiuram monosulfide	Bis(dimethylthiocarbamoyl) sulfide	97-74-5	----
Tetranitromethane	Methane, tetranitro-	509-14-8	P112
Thallium	Same	7440-28-0	----
Thallium compounds, N.O.S.*	-----	-----	----
Thallic oxide	Thallium oxide Tl_2O_3	1314-32-5	P113
Thallium(I) acetate	Acetic acid, thallium(1+) salt	563-68-8	U214
Thallium(I) carbonate	Carbonic acid, dithallium(1+) salt	6533-73-9	U215
Thallium(I) chloride	Thallium chloride $TlCl$	7791-12-0	U216
Thallium(I) nitrate	Nitric acid, thallium(1+) salt	10102-45-1	U217
Thallium selenite	Selenious acid, dithallium(1+) salt	12039-52-0	P114
Thallium(I) sulfate	Sulfuric acid, dithallium(1+) salt	7446-18-6	P115
Thioacetamide	Ethanethioamide	62-55-5	U218

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Thiodicarb	Ethanimidothioic acid, N,N'-[thiobis [(methylimino)carbonyloxy]]bis-, dimethyl ester	59669-26-0	U410
Thiofanox	2-Butanone, 3,3-dimethyl-1-(methylthio)-, 0-[(methylamino)carbonyl] oxime	39196-18-4	P045
Thiomethanol	Methanethiol	74-93-1	U153
Thiophanate-methyl	Carbamic acid, [1,2-phenylenebis (iminocarbonothioyl)]bis-, dimethyl ester	23564-05-8	U409
Thiophenol	Benzenethiol	108-98-5	P014
Thiosemicarbazide	Hydrazinecarbothioamide	79-19-6	P116
Thiourea	Same	62-56-6	U219
Thiram	Thioperoxydicarbonicdiamide [(H ₂ N)C(S)] ₂ S ₂ , tetramethyl-	137-26-8	U244
Tirpate	1,3-Dithiolane-2-carboxaldehyde, 2,4-dimethyl-, O-[(methylamino)carbonyl] oxime	26419-73-8	P185
Toluene	Benzene, methyl-	108-88-3	U220
Toluenediamine	Benzenediamine, ar-methyl-	25376-45-8	U221
Toluene-2,4-diamine	1,3-Benzenediamine, 4-methyl-	95-80-7	----
Toluene-2,6-diamine	1,3-Benzenediamine, 2-methyl-	823-40-5	----
Toluene-3,4-diamine	1,2-Benzenediamine, 4-methyl-	496-72-0	----
Toluenediisocyanate	Benzene, 1,3-diisocyanatomethyl-	26471-62-5	U223
o-Toluidine	Benzenamine, 2-methyl-	95-53-4	U328
o-Toluidine hydrochloride	Benzenamine, 2-methyl-, hydrochloride	636-21-5	U222
p-Toluidine	Benzenamine, 4-methyl-	106-49-0	U353
Toxaphene	Same	8001-35-2	P123
Triallate	Carbamothioic acid, bis(1-methylethyl)-, S-(2,3,3-trichloro-2-propenyl) ester	2303-17-5	U389

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
1,2,4-Trichlorobenzene	Benzene, 1,2,4-trichloro-	120-82-1	----
1,1,2-Trichloroethane	Ethane, 1,1,2-trichloro-	79-00-5	U227
Trichloroethylene	Ethene, trichloro-	79-01-6	U228
Trichloromethanethiol	Methanethiol, trichloro-	75-70-7	P118
Trichloromono fluoromethane	Methane, trichlorofluoro-	75-69-4	U121
2,4,5-Trichlorophenol	Phenol, 2,4,5-trichloro-	95-95-4	See F027
2,4,6-Trichlorophenol	Phenol, 2,4,6-trichloro-	88-06-2	See F027
2,4,5-T	Acetic acid, (2,4,5-trichlorophenoxy)-	93-76-5	See F027
Trichloropropane, N.O.S.*	-----	25735-29-9	----
1,2,3-Trichloropropane	Propane, 1,2,3-trichloro-	96-18-4	----
Triethylamine	Ethanamine, N,N-diethyl	121-44-8	U404
O,O,O-Triethyl phosphorothioate	Phosphorothioic acid, O,O,O-triethyl ester	126-68-1	----
1,3,5-Trinitrobenzene	Benzene, 1,3,5-trinitro-	99-35-4	U234
Tris(1-aziridinyl) phosphine sulfide	Aziridine, 1,1',1''-phosphinothioylidynetris-	52-24-4	----
Tris(2,3-dibromopropyl) phosphate	1-Propanol, 2,3-dibromo-, phosphate (3:1)	126-72-7	U235
Trypan blue	2,7-Naphthalenedisulfonic acid, 3,3'-[(3,3'-dimethyl[1,1'-biphenyl] -4,4'-diyl)bis(azo)]- bis[5-amino-4-hydroxy-, tetrasoidum salt	72-57-1	U236
Uracil mustard	2,4-(1H,3H)-Pyrimidinedione, 5-[bis(2-chloroethyl)amino]-	66-75-1	U237
Vanadium pentoxide	Vanadium oxide V ₂ O ₅	1314-62-1	P120
Vernolate	Carbamothioic acid, dipropyl-, S-propyl ester	1929-77-7	----
Vinyl chloride	Ethene, chloro-	75-01-4	U043

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Warfarin	2H-1-Benzopyran-2-one,4-hydroxy-3-(3-oxo-1-phenylbutyl)-, when present at concentrations less than 0.3%	81-81-2	U248
Warfarin	2H-1-Benzopyran-2-one,4-hydroxy-3-(3-oxo-1-phenylbutyl)-, when present at concentrations greater than 0.3%	81-81-2	P001
Warfarin salts,	when present at concentrations less than 0.3%	-----	U248
Warfarin salts,	when present at concentrations greater than 0.3%	-----	P001
Zinc cyanide	Zinc cyanide $Zn(CN)_2$	557-21-1	P121
Zinc phosphide	Zinc phosphide Zn_3P_2 , when present at concentrations of 10% or less	1314-84-7	U249
Zinc phosphide	Zinc phosphide Zn_3P_2 , when present at concentrations of greater than 10%	1314-84-7	P122
Ziram	Zinc, bis(dimethylcarbamo-dithioato-S,S')-, (T-4)-	137-30-4	P205
* The abbreviation N.O.S. (not otherwise specified) signifies those members of the general class not specifically listed by name in this appendix.			

~~[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."]~~

3745-51-11

Criteria for listing hazardous waste.

(A) The director ~~will~~shall list a waste as a hazardous waste only upon determining that the waste meets one of the following criteria:

- (1) The waste exhibits any of the characteristics of hazardous waste identified in rules 3745-51-20 to 3745-51-24 of the Administrative Code.
- (2) The waste has been found to be fatal to humans in low doses or, in the absence of data on human toxicity, the waste has been shown in studies to have an oral LD50 toxicity (rat) of less than fifty milligrams per kilogram, an inhalation LC50 toxicity (rat) of less than two milligrams per liter, or a dermal LD50 toxicity (rabbit) of less than two hundred milligrams per kilogram or is otherwise capable of causing or significantly contributing to an increase in serious irreversible, or incapacitating reversible illness. (Wastes listed in accordance with these criteria ~~will~~shall be designated acute hazardous wastes.)

[Comment: As used in this paragraph, LD (lethal dosage) and LC (lethal concentration) are standard measures of toxicity. A LD50 dosage, and a LC50 concentration, are fatal to fifty per cent of the test subjects.]

- (3) The waste contains any of the toxic constituents listed in the appendix to this rule and, after considering the following factors, the director concludes that the waste is capable of posing a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed:
 - (a) The nature of the toxicity presented by the constituent.
 - (b) The concentration of the constituent in the waste.
 - (c) The potential of the constituent or any toxic degradation product of the constituent to migrate from the waste into the environment under the types of improper management considered in paragraph (A)(3)(g) of this rule.
 - (d) The persistence of the constituent or any toxic degradation product of the constituent.

- (e) The potential for the constituent or any toxic degradation product of the constituent to degrade into nonharmful constituents and the rate of degradation.
 - (f) The degree to which the constituent or any degradation product of the constituent bioaccumulates in ecosystems.
 - (g) The plausible types of improper management to which the waste could be subjected.
 - (h) The quantities of the waste generated at individual generation sites or on a regional or national basis.
 - (i) The nature and severity of the human health and environmental damage that has occurred as a result of the improper management of wastes containing the constituent.
 - (j) Action taken by other governmental agencies or regulatory programs based on the health or environmental hazard posed by the waste or waste constituent.
 - (k) Such other factors as may be appropriate. Substances ~~will~~shall be listed in the appendix to this rule only if those substances have been shown in scientific studies to have toxic, carcinogenic, mutagenic or teratogenic effects on humans or other life forms. (Wastes listed in accordance with these criteria ~~will~~shall be designated toxic wastes.)
- (B) The director may list classes or types of waste as hazardous waste if the director has reason to believe that individual wastes, within the class or type of waste, typically or frequently are hazardous under the definition of "hazardous waste" in Section 1004(5) of the Resource Conservation and Recovery Act.
- (C) The director ~~will~~shall use the criteria for listing specified in this rule to establish the exclusion limits referred to in rule ~~3745-51-05~~3745-52-13 of the Administrative Code.
- (D) The director shall not list any waste that the administrator delisted or excluded by an amendment to the federal regulations, any waste that the administrator declined to list by publishing a denial of a rulemaking petition or by withdrawal of a proposed listing in the Federal Register after May 18, 1980, or any waste oil or polychlorinated biphenyl not listed by the administrator.

[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."]

Effective: 10/5/2020
Five Year Review (FYR) Dates: 7/13/2020 and Exempt

CERTIFIED ELECTRONICALLY

Certification

09/21/2020

Date

Promulgated Under: 119.03
Statutory Authority: 3734.12
Rule Amplifies: 3734.12
Prior Effective Dates: 04/15/1981, 05/29/1985 (Emer.), 08/29/1985,
06/29/1990, 02/11/1992, 04/15/1993, 02/14/1995,
09/02/1997, 12/07/2000, 12/07/2004, 02/16/2009,
10/31/2015

Appendix to rule 3745-51-11 of the Administrative Code

HAZARDOUS CONSTITUENTS

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
A2213	Ethanimidothioic acid, 2-(dimethylamino)-N-hydroxy-2-oxo-, methyl ester	30558-43-1	U394
Acetonitrile	Same	75-05-8	U003
Acetophenone	Ethanone, 1-phenyl-	98-86-2	U004
2-Acetylaminefluorone	Acetamide, N-9H-fluoren-2-yl-	53-96-3	U005
Acetyl chloride	Same	75-36-5	U006
1-Acetyl-2-thiourea	Acetamide, N-(aminothioxomethyl)-	591-08-2	P002
Acrolein	2-Propenal	107-02-8	P003
Acrylamide	2-Propenamamide	79-06-1	U007
Acrylonitrile	2-Propenenitrile	107-13-1	U009
Aflatoxins	Same	1402-68-2	----
Aldicarb	Propanal, 2-methyl-2-(methylthio)-, O-[(methylamino)carbonyl] oxime	116-06-3	P070
Aldicarb sulfone	Propanal, 2-methyl-2-(methylsulfonyl)-, O-[(methylamino)carbonyl] oxime	1646-88-4	P203
Alrin	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-, (1alpha,4alpha,4abeta,5alpha,8alpha,8abeta)-	309-00-2	P004
Allyl alcohol	2-Propen-1-ol	107-18-6	P005
Allyl chloride	1-Propane, 3-chloro	107-05-1	----
Aluminum phosphide	Same	20859-73-8	P006
4-Aminobiphenyl	[1,1'-Biphenyl]-4-amine	92-67-1	----
5-(Aminomethyl)-3-isoxazolol	3(2H)-Isoxazolone, 5-(aminomethyl)-	2763-96-4	P007
4-Aminopyridine	4-Pyridinamine	504-24-5	P008
Amitrole	1H-1,2,4-Triazol-3-amine	61-82-5	U011

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Ammonium vanadate	Vanadic acid, ammonium salt	7803-55-6	P119
Aniline	Benzenamine	62-53-3	U012
o-Anisidine (2-methoxyaniline)	Benzenamine, 2-Methoxy-	90-04-0	----
Antimony	Same	7440-36-0	----
Antimony compounds, N.O.S.*	-----	-----	----
Aramite	Sulfurous acid, 2-chloroethyl 2-[4-(1,1-dimethylethyl)phenoxy]-1-methylethyl ester	140-57-8	----
Arsenic	Same	7440-38-2	----
Arsenic compounds, N.O.S.*	-----	-----	----
Arsenic acid	Arsenic acid H ₃ AsO ₄	7778-39-4	P010
Arsenic pentoxide	Arsenic oxide As ₂ O ₅	1303-28-2	P011
Arsenic trioxide	Arsenic oxide As ₂ O ₃	1327-53-3	P012
Auramine	Benzenamine, 4,4'-carbonimidoylbis[N,N-dimethyl	492-80-8	U014
Azaserine	L-Serine, diazoacetate (ester)	115-02-6	U015
Barban	Carbamic acid, (3-chlorophenyl)-, 4-chloro-2-butynyl ester	101-27-9	U280
Barium	Same	7440-39-3	----
Barium compounds, N.O.S.*	-----	-----	----
Barium cyanide	Same	542-62-1	P013
Bendiocarb	1,3-Benzodioxol-4-ol, 2,2-dimethyl-, methyl carbamate	22781-23-3	U278
Bendiocarb phenol	1,3-Benzodioxol-4-ol, 2,2-dimethyl-	22961-82-6	U364

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Benomyl	Carbamic acid, [1-[(butylamino)carbonyl]-1Hbenzimidazol-2-yl]-, methyl ester	17804-35-2	U271
Benz[c]acridine	Same	225-51-4	U016
Benz[a]anthracene	Same	56-55-3	U018
Benzal chloride	Benzene, (dichloromethyl)-	98-87-3	U017
Benzene	Same	71-43-2	U019
Benzene arsonic acid	Arsonic acid, phenyl-	98-05-5	----
Benzidine	[1,1'-Biphenyl]-4,4'-diamine	92-87-5	U021
Benzo[b]fluoranthene	Benz[e]acephenanthrylene	205-99-2	----
Benzo[j]fluoranthene	Same	205-82-3	----
Benzo(k)fluoranthene	Same	207-08-9	----
Benzo[a]pyrene	Same	50-32-8	U022
p-Benzoquinone	2,5-Cyclohexadiene-1,4-dione	106-51-4	U197
Benzotrichloride	Benzene, (trichloromethyl)-	98-07-7	U023
Benzyl chloride	Benzene, (chloromethyl)-	100-44-7	P028
Beryllium powder	Same	7440-41-7	P015
Beryllium compounds, N.O.S.*	-----	-----	----
Bis(pentamethylene)-thiuram tetrasulfide	Piperidine, 1,1'-(tetrathiodicarbonothioyl)-bis-	120-54-7	----
Butylate	Carbamothioic acid, bis(2-methylpropyl)-, S-ethyl ester	2008-41-5	----
Bromoacetone	2-Propanone, 1-bromo-	598-31-2	P017
Bromoform	Methane, tribromo-	75-25-2	U225
4-Bromophenyl phenyl ether	Benzene, 1-bromo-4-phenoxy-	101-55-3	U030
Brucine	Strychnidin-10-one, 2,3-dimethoxy-	357-57-3	P018

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Butyl benzyl phthalate	1,2-Benzenedicarboxylic acid, butyl phenylmethyl ester	85-68-7	----
Cacodylic acid	Arsinic acid, dimethyl-	75-60-5	U136
Cadmium	Same	7440-43-9	----
Cadmium compounds, N.O.S.*	-----	-----	----
Calcium chromate	Chromic acid H ₂ CrO ₄ , calcium salt	13765-19-0	U032
Calcium cyanide	Calcium cyanide Ca(CN) ₂	592-01-8	P021
Carbaryl	1-Naphthalenol, methylcarbamate	63-25-2	U279
Carbendazim	Carbamic acid, 1H-benzimidazol-2-yl, methyl ester	10605-21-7	U372
Carbofuran	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl-, methylcarbamate	1563-66-2	P127
Carbofuran phenol	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl-	1563-38-8	U367
Carbon disulfide	Same	75-15-0	P022
Carbon oxyfluoride	Carbonic difluoride	353-50-4	U033
Carbon tetrachloride	Methane, tetrachloro-	56-23-5	U211
Carbosulfan	Carbamic acid, [(dibutylamino)thio] methyl-, 2,3-dihydro-2,2-dimethyl-7-benzofuranyl ester	55285-14-8	P189
Chloral	Acetaldehyde, trichloro-	75-87-6	U034
Chlorambucil	Benzenebutanoic acid, 4-[bis(2-chloroethyl)amino]-	305-03-3	U035
Chlordane	1,2,4,5,6,7,8,8-Octachloro-2,3,3a,4,7,7a-hexahydro-4,7-methano-1H-indene	57-74-9	U036
Chlordane (alpha and gamma isomers)	-----	-----	U036
Chlorinated benzenes, N.O.S.*	-----	-----	----

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Chlorinated ethane, N.O.S.*	-----	-----	----
Chlorinated fluorocarbons, N.O.S.*	-----	-----	----
Chlorinated naphthalene, N.O.S.*	-----	-----	----
Chlorinated phenol, N.O.S.*	-----	-----	----
Chlornaphazin	Naphthalenamine, N,N'-bis(2-chloroethyl)-	494-03-1	U026
Chloroacetaldehyde	Acetaldehyde, chloro-	107-20-0	P023
Chloroalkyl ethers, N.O.S.*	-----	-----	----
p-Chloroaniline	Benzenamine, 4- chloro-	106-47-8	P024
Chlorobenzene	Benzene, chloro-	108-90-7	U037
Chlorobenzilate	Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy-, ethyl ester	510-15-6	U038
p-Chloro-m-cresol	Phenol, 4-chloro-3-methyl-	59-50-7	U039
2-Chloroethyl vinyl ether	Ethene, (2-chloroethoxy)-	110-75-8	U042
Chloroform	Methane, trichloro-	67-66-3	U044
Chloromethyl methyl ether	Methane, chloromethoxy-	107-30-2	U046
beta-Chloronaphthalene	Naphthalene, 2-chloro-	91-58-7	U047
o-Chlorophenol	Phenol, 2-chloro-	95-57-8	U048
1-(o-Chlorophenyl) thiourea	Thiourea, (2-chlorophenyl)-	5344-82-1	P026
Chloroprene	1,3-Butadiene, 2-chloro-	126-99-8	----
3-Chloropropionitrile	Propanenitrile, 3-chloro-	542-76-7	P027
Chromium	Same	7440-47-3	----

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Chromium compounds, N.O.S.*	-----	-----	----
Chrysene	Same	218-01-9	U050
Citrus red No. 2	2-Naphthalenol, 1-[(2,5-dimethoxyphenyl)azo]-	6358-53-8	----
Coal tar creosote	Same	8007-45-2	----
Copper cyanide	Copper cyanide CuCN	544-92-3	P029
Copper dimethyldithiocarbamate	Copper, bis(dimethylcarbamo-dithioato-S,S')-	137-29-1	----
Creosote	Same	-----	U051
p-Cresidine	2-Methoxy-5-methylbenzenamine	120-71-8	----
Cresol (Cresylic acid)	Phenol, methyl-	1319-77-3	U052
Crotonaldehyde	2-Butenal	4170-30-3	U053
m-Cumenyl methylcarbamate	Phenol, 3-(methylethyl)-, methyl carbamate	64-00-6	P202
Cyanides (soluble salts and complexes) N.O.S.*	-----	-----	P030
Cyanogen	Ethanedinitrile	460-19-5	P031
Cyanogen bromide	Cyanogen bromide (CN)Br	506-68-3	U246
Cyanogen chloride	Cyanogen chloride (CN)Cl	506-77-4	P033
Cycasin	beta-D-Glucopyranoside, (methyl-ONN-azoxy)methyl	14901-08-7	----
Cycloate	Carbamothioic acid, cyclohexylethyl-, S-ethyl ester	1134-23-2	----
2-Cyclohexyl-4,6-dinitrophenol	Phenol, 2-cyclohexyl-4,6-dinitro-	131-89-5	P034
Cyclophosphamide	2H-1,3,2-Oxazaphosphorin-2-amine, N,N-bis(2-chloroethyl)tetrahydro-,2-oxide	50-18-0	U058
2,4-D	Acetic acid, (2,4-dichlorophenoxy)-	94-75-7	U240

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
2,4-D, salts, esters	-----	-----	U240
Daunomycin	5,12-Naphthacenedione, 8-acetyl-10-[(3-amino-2,3,6-trideoxy-alpha-L-lyxohexopyranosyl)oxy]-7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-, (8S-cis)-	20830-81-3	U059
Dazomet	2H-1,3,5-thiadiazine-2-thione, tetrahydro-3,5-dimethyl	533-74-4	----
DDD	Benzene, 1,1'-(2,2-dichloroethylidene)bis[4-chloro-	72-54-8	U060
DDE	Benzene, 1,1'-(dichloroethenylidene)bis[4-chloro-	72-55-9	----
DDT	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro-	50-29-3	U061
Diallate	Carbamothioic acid, bis(1-methylethyl)-, -(2,3-dichloro-2-propenyl) ester	2303-16-4	U062
Dibenz[a,h]acridine	Same	226-36-8	----
Dibenz[a,j]acridine	Same	224-42-0	----
Dibenz[a,h]anthracene	Same	53-70-3	U063
7H-Dibenzo[c,g]carbazole	Same	194-59-2	----
Dibenzo[a,e]pyrene	Naphtho[1,2,3,4-def]chrysene	192-65-4	----
Dibenzo[a,h]pyrene	Dibenzo[b,def]chrysene	189-64-0	----
Dibenzo[a,i]pyrene	Benzo[rst]pentaphene	189-55-9	U064
1,2-Dibromo-3-chloropropane	Propane, 1,2-dibromo-3-chloro-	96-12-8	U066
Dibutyl phthalate	1,2-Benzenedicarboxylic acid, dibutyl ester	84-74-2	U069
o-Dichlorobenzene	Benzene, 1,2-dichloro-	95-50-1	U070
m-Dichlorobenzene	Benzene, 1,3-dichloro-	541-73-1	U071
p-Dichlorobenzene	Benzene, 1,4-dichloro-	106-46-7	U072
Dichlorobenzene, N.O.S.*	Benzene, dichloro-	25321-22-6	----

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
3,3'-Dichlorobenzidine	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dichloro-	91-94-1	U073
1,4-Dichloro-2-butene	2-Butene, 1,4-dichloro-	764-41-0	U074
Dichlorodifluoromethane	Methane, dichlorodifluoro-	75-71-8	U075
Dichloroethylene, N.O.S.*	Dichloroethylene	25323-30-2	----
1,1-Dichloroethylene	Ethene, 1,1-dichloro-	75-35-4	U078
1,2-Dichloroethylene	Ethene, 1,2-dichloro-, (E)-	156-60-5	U079
Dichloroethyl ether	Ethane, 1,1'-oxybis[2-chloro-	111-44-4	U025
Dichloroisopropyl ether	Propane, 2,2'-oxybis[2-chloro-	108-60-1	U027
Dichloromethoxy ethane	Ethane, 1,1'-[methylenebis(oxy)]bis[2-chloro-	111-91-1	U024
Dichloromethyl ether	Methane, oxybis[chloro-	542-88-1	P016
2,4-Dichlorophenol	Phenol, 2,4-dichloro-	120-83-2	U081
2,6-Dichlorophenol	Phenol, 2,6-dichloro-	87-65-0	U082
Dichlorophenylarsine	Arsonous dichloride, phenyl-	696-28-6	P036
Dichloropropane, N.O.S.*	Propane, dichloro-	26638-19-7	----
Dichloropropanol, N.O.S.*	Propanol, dichloro-	26545-73-3	----
Dichloropropene, N.O.S.*	1-Propene, dichloro-	26952-23-8	----
1,3-Dichloropropene	1-Propene, 1,3-dichloro-	542-75-6	U084
Dieldrin	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7, 7a-octahydro-, (1aalpha,2beta,2aalpha, 3beta,6beta,6aalpha,7beta,7aalpha)-	60-57-1	P037
1,2:3,4-Diepoxybutane	2,2'-Bioxirane	1464-53-5	U085
Diethylarsine	Arsine, diethyl-	692-42-2	P038
Diethylene glycol, dicarbamate	Ethanol, 2,2'-oxybis-, dicarbamate	5952-26-1	U395
1,4-Diethyleneoxide	1,4-Dioxane	123-91-1	U108

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Diethylhexyl phthalate	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester	117-81-7	U028
N,N'-Diethylhydrazine	Hydrazine, 1,2-diethyl-	1615-80-1	U086
O,O-Diethyl S-methyldithiophosphate	Phosphorodithioic acid, O,O-diethyl S-methyl ester	3288-58-2	U087
Diethyl-p-nitrophenyl phosphate	Phosphoric acid, diethyl 4-nitrophenyl ester	311-45-5	P041
Diethyl phthalate	1,2-Benzenedicarboxylic acid, diethyl ester	84-66-2	U088
O,O-Diethyl O-pyrazinyl phosphorothioate	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester	297-97-2	P040
Diethylstilbesterol	Phenol, 4,4'-(1,2-diethyl-1,2-ethenediyl)bis-(E)-	56-53-1	U089
Dihydrosafrole	1,3-Benzodioxole, 5-propyl-	94-58-6	U090
Diisopropylfluoro phosphate (DFP)	Phosphorofluoridic acid bis(1-methylethyl) ester	55-91-4	P043
Dimethoate	Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl] ester	60-51-5	P044
3,3'-Dimethoxybenzidine	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethoxy-	119-90-4	U091
p-Dimethylaminoazobenzene	Benzenamine, N,N-dimethyl-4-(phenylazo)-	60-11-7	U093
2,4-Dimethylaniline (2,4-xylidine)	Benzenamine, 2,4-dimethyl-	95-68-1	----
7,12-Dimethylbenz[a]anthracene	Benz[a]anthracene, 7,12-dimethyl-	57-97-6	U094
3,3'-Dimethylbenzidine	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl-	119-93-7	U095
Dimethylcarbamoyl chloride	Carbamic chloride, dimethyl-	79-44-7	U097
1,1-Dimethylhydrazine	Hydrazine, 1,1-dimethyl-	57-14-7	U098
1,2-Dimethylhydrazine	Hydrazine, 1,2-dimethyl-	540-73-8	U099

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
alpha,alpha-Dimethyl phenethylamine	Benzeneethanamine, alpha,alpha-dimethyl-	122-09-8	P046
2,4-Dimethylphenol	Phenol, 2,4-dimethyl-	105-67-9	U101
Dimethyl phthalate	1,2-Benzenedicarboxylic acid, dimethyl ester	131-11-3	U102
Dimethyl sulfate	Sulfuric acid, dimethyl ester	77-78-1	U103
Dimetilan	Carbamic acid, dimethyl-, 1-[(dimethylamino)carbonyl]-5-methyl-1-H-pyrazol-3-yl ester	644-64-4	P191
Dinitrobenzene, N.O.S.*	Benzene, dinitro-	25154-54-5	----
4,6-Dinitro-o-cresol	Phenol, 2-methyl-4,6-dinitro-	534-52-1	P047
4,6-Dinitro-o-cresol salts	-----	-----	P047
2,4-Dinitrophenol	Phenol, 2,4-dinitro-	51-28-5	P048
2,4-Dinitrotoluene	Benzene, 1-methyl-2,4-dinitro-	121-14-2	U105
2,6-Dinitrotoluene	Benzene, 2-methyl-1,3-dinitro-	606-20-2	U106
Dinoseb	Phenol, 2-(1-methylpropyl)-4,6-dinitro-	88-85-7	P020
Di-n-octyl phthalate	1,2-Benzenedicarboxylic acid, dioctyl ester	117-84-0	U017
Diphenylamine	Benzenamine, N-phenyl-	122-39-4	----
1,2-Diphenylhydrazine	Hydrazine, 1,2-diphenyl-	122-66-7	U109
Di-n-propylnitrosamine	1-Propanamine, N-nitroso-N-propyl-	621-64-7	U111
Disulfiram	Thioperoxydicarbonic diamide, tetraethyl	97-77-8	----
Disulfoton	Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl] ester	298-04-4	P039
Dithiobiuret	Thioimidodicarbonic diamide [(H ₂ N)C(S)] ₂ NH	541-53-7	P049
Endosulfan	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide	115-29-7	P050

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Endothall	7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid	145-73-3	P088
Endrin	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2abeta,3alpha,6alpha,6abeta,7beta,7aalpha)-	72-20-8	P051
Endrin metabolites	-----	-----	P051
Epichlorohydrin	Oxirane, (chloromethyl)-	106-89-8	U041
Epinephrine	1,2-Benzenediol, 4-[1-hydroxy-2-(methylamino)ethyl]-, (R)-	51-43-4	P042
EPTC	Carbamothioic acid, dipropyl-, S-ethyl ester	759-94-4	----
Ethyl carbamate (urethane)	Carbamic acid, ethyl ester	51-79-6	U238
Ethyl cyanide	Propanenitrile	107-12-0	P101
Ethyl ziram	Zinc, bis(diethylcarbamodithioato-S,S')-	14324-55-1	----
Ethylenebisdithiocarbamic acid	Carbamodithioic acid, 1,2-ethanediylbis-	111-54-6	U114
Ethylenebisdithiocarbamic acid, salts and esters	-----	-----	U114
Ethylene dibromide	Ethane, 1,2-dibromo-	106-93-4	U067
Ethylene dichloride	Ethane, 1,2-dichloro-	107-06-2	U077
Ethylene glycol monoethyl ether	Ethanol, 2-ethoxy-	110-80-5	U359
Ethyleneimine	Aziridine	151-56-4	P054
Ethylene oxide	Oxirane	75-21-8	U115
Ethylenethiourea	2-Imidazolidinethione	96-45-7	U116
Ethylidene dichloride	Ethane, 1,1-dichloro-	75-34-3	U076
Ethyl methacrylate	2-Propenoic acid, 2-methyl-, ethyl ester	97-63-2	U118
Ethyl methanesulfonate	Methanesulfonic acid, ethyl ester	62-50-0	U119

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Famphur	Phosphorothioic acid, O-[4-[(dimethylamino)sulfonyl]phenyl] O,O-dimethyl ester	52-85-7	P097
Ferbam	Iron, tris(dimethylcarbamo-dithioat-S,S')-,	14484-64-1	----
Fluoranthene	Same	206-44-0	U120
Fluorine	Same	7782-41-4	P056
Fluoroacetamide	Acetamide, 2-fluoro-	640-19-7	P057
Fluoroacetic acid, sodium salt	Acetic acid, fluoro-, sodium salt	62-74-8	P058
Formaldehyde	Same	50-00-0	U122
Formetanate hydrochloride	Methanimidamide, N,N-dimethyl-N'- [3-[(methylamino)carbonyl] oxy]phenyl]-, monohydrochloride	23422-53-9	P198
Formic acid	Same	64-18-6	U123
Formparanate	Methanimidamide, N,N-dimethyl-N'- [2-methyl-4-[(methylamino)carbonyl] oxy]phenyl]-	17702-57-7	P197
Glycidylaldehyde	Oxiranecarboxyaldehyde	765-34-4	U126
Halomethanes, N.O.S.*	-----	-----	----
Heptachlor	4,7-Methano-1H-indene, 1,4,5,6,7,8,8- heptachloro-3a,4,7,7a-tetrahydro-	76-44-8	P059
Heptachlor epoxide	2,5-Methano-2H-indeno[1,2-b]oxirene, 2,3,4,5,6,7,7-heptachloro-1a,1b,5,5a,6,6a- hexahydro-, (1aalpha,1bbeta,2alpha, 5alpha,5abeta,6beta,6aalpha)-	1024-57-3	----
Heptachlor epoxide (alpha, beta, and gamma isomers)	-----	-----	----
Heptachlorodibenzofurans	-----	-----	----
Heptachlorodibenzo-p-dioxins	-----	-----	----
Hexachlorobenzene	Benzene, hexachloro-	118-74-1	U127

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Hexachlorobutadiene	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-	87-68-3	U128
Hexachlorocyclopentadiene	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-	77-47-4	U130
Hexachlorodibenzo-p-dioxins	-----	-----	----
Hexachlorodibenzofurans	-----	-----	----
Hexachloroethane	Ethane, hexachloro-	67-72-1	U131
Hexachlorophene	Phenol, 2,2'-methylenebis[3,4,6-trichloro-	70-30-4	U132
Hexachloropropene	1-Propene, 1,1,2,3,3,3-hexachloro-	1888-71-7	U243
Hexaethyltetraphosphate	Tetraphosphoric acid, hexaethyl ester	757-58-4	P062
Hydrazine	Same	302-01-2	U133
Hydrogen cyanide	Hydrocyanic acid	74-90-8	P063
Hydrogen fluoride	Hydrofluoric acid	7664-39-3	U134
Hydrogen sulfide	Hydrogen sulfide H ₂ S	7783-06-4	U135
Indeno[1,2,3-cd]pyrene	Same	193-39-5	U137
3-Iodo-2-propynyl n-butylcarbamate	Carbamic acid, butyl-, 3-iodo-2-propynyl ester	55406-53-6	----
Isobutyl alcohol	1-Propanol, 2-methyl-	78-83-1	U140
Isodrin	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-, (1alpha,4alpha,4abeta,5beta,8beta,8abeta)-	465-73-6	P060
Isolan	Carbamic acid, dimethyl-, 3-methyl-1-(1-methylethyl)-1H-pyrazol-5-yl ester	119-38-0	P192
Isosafrole	1,3-Benzodioxole, 5-(1-propenyl)-	120-58-1	U141
Kepone	1,3,4-Metheno-2H-cyclobuta[cd]pentalen-2-one, 1,1a,3,3a,4,5,5,5a,5b,6-decachlorooctahydro-	143-50-0	U142

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Lasiocarpine	2-Butenoic acid, 2-methyl-,7- [[2,3-dihydroxy-2-(1-methoxyethyl)-3- methyl-1-oxobutoxy]methyl]-2,3,5,7a- tetrahydro-1H-pyrrolizin-1-yl ester, [1S-[1alpha(Z),7-(2S*,3R*),7aalpha]]-	303-34-4	U143
Lead	Same	7439-92-1	----
Lead compounds, N.O.S.*	-----	-----	----
Lead acetate	Acetic acid, lead(2+) salt	301-04-2	U144
Lead phosphate	Phosphoric acid, lead(2+) salt (2:3)	7446-27-7	U145
Lead subacetate	Lead, bis(acetato-O)-tetrahydroxytri-	1335-32-6	U146
Lindane	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1alpha,2alpha,3beta,4alpha,5alpha, 6beta)-	58-89-9	U129
Maleic anhydride	2,5-Furandione	108-31-6	U147
Maleic hydrazide	3,6-Pyridazinedione, 1,2-dihydro-	123-33-1	U148
Malononitrile	Propanedinitrile	109-77-3	U149
Manganese dimethyldithiocarbamate	Manganese, bis(dimethylcarbomodithioato-S,S')-	15339-36-3	P196
Melphalan	L-Phenylalanine, 4-[bis(2-chloroethyl)aminol]-	148-82-3	U150
Mercury	Same	7439-97-6	U151
Mercury compounds, N.O.S.*	-----	-----	----
Mercury fulminate	Fulminic acid, mercury(2+) salt	628-86-4	P065
Metam sodium	Carbamodithioic acid, methyl-, monosodium salt	137-42-8	----
Methacrylonitrile	2-Propenenitrile, 2-methyl-	126-98-7	U152
Methapyrilene	1,2-Ethanediamine, N,N-dimethyl- N'-2-pyridinyl-N'-(2-thienylmethyl)-	91-80-5	U155
Methiocarb	Phenol, (3,5-dimethyl-4-(methylthio)-, methylcarbamate	2032-65-7	P199

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Methomyl	Ethanimidothioic acid, N-[[[(methylamino)carbonyl]oxy]-, methyl ester	16752-77-5	P066
Methoxychlor	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-methoxy-	72-43-5	U247
Methyl bromide	Methane, bromo-	74-83-9	U029
Methyl chloride	Methane, chloro-	74-87-3	U045
Methyl chlorocarbonate	Carbonochloridic acid, methyl ester	79-22-1	U156
Methyl chloroform	Ethane, 1,1,1-trichloro-	71-55-6	U226
3-Methylcholanthrene	Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-	56-49-5	U157
4,4'-Methylenebis (2-chloroaniline)	Benzenamine, 4,4'-methylenebis[2-chloro-	101-14-4	U158
Methylene bromide	Methane, dibromo-	74-95-3	U068
Methylene chloride	Methane, dichloro-	75-09-2	U080
Methyl ethyl ketone (MEK)	2-Butanone	78-93-3	U159
Methyl ethyl ketone peroxide	2-Butanone, peroxide	1338-23-4	U160
Methyl hydrazine	Hydrazine, methyl-	60-34-4	P068
Methyl iodide	Methane, iodo-	74-88-4	U138
Methyl isocyanate	Methane, isocyanato-	624-83-9	P064
2-Methylacetonitrile	Propanenitrile, 2-hydroxy-2-methyl-	75-86-5	P069
Methyl methacrylate	2-Propenoic acid, 2-methyl-, methyl ester	80-62-6	U162
Methylmethanesulfonate	Methanesulfonic acid, methyl ester	66-27-3	----
Methyl parathion	Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl) ester	298-00-0	P071
Methylthiouracil	4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-	56-04-2	U164

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Metolcarb	Carbamic acid, methyl-, 3-methylphenyl ester	1129-41-5	P190
Mexacarbate	Phenol, 4-(dimethylamino)-3,5-dimethyl-, methylcarbamate (ester)	315-18-4	P128
Mitomycin C	Azirino[2',3':3,4]pyrrolo[1,2-a]indole-4,7-dione,6-amino-8-[[aminocarbonyl]oxy]methyl]-1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5-methyl-, [1aS-(1aalpha,8beta,8aalpha,8balph)]-	50-07-7	U010
MNNG	Guanidine, N-methyl-N'-nitro-N-nitroso-	70-25-7	U163
Molinate	1H-Azepine-1-carbothioic acid, hexahydro-, S-ethyl ester	2212-67-1	----
Mustard gas	Ethane, 1,1'-thiobis[2-chloro-	505-60-2	----
Naphthalene	Same	91-20-3	U165
1,4-Naphthoquinone	1,4-Naphthalenedione	130-15-4	U166
alpha-Naphthylamine	1-Naphthalenamine	134-32-7	U167
beta-Naphthylamine	2-Naphthalenamine	91-59-8	U168
alpha-Naphthylthiourea	Thiourea, 1-naphthalenyl-	86-88-4	P072
Nickel	Same	7440-02-0	----
Nickel compounds, N.O.S.*	-----	-----	----
Nickel carbonyl	Nickel carbonyl Ni(CO) ₄ , (T-4)-	13463-39-3	P073
Nickel cyanide	Nickel cyanide Ni(CN) ₂	557-19-7	P074
Nicotine	Pyridine, 3-(1-methyl-2-pyrrolidinyl)-,(S)-	54-11-5	P075
Nicotine salts	-----	-----	P075
Nitric oxide	Nitrogen oxide NO	10102-43-9	P076
p-Nitroaniline	Benzenamine, 4-nitro-	100-01-6	P077
Nitrobenzene	Benzene, nitro-	98-95-3	U169

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Nitrogen dioxide	Nitrogen oxide NO ₂	10102-44-0	P078
Nitrogen mustard	Ethanamine, 2-chloro-N-(2-chloroethyl)-N-methyl-	51-75-2	----
Nitrogen mustard, hydrochloride salt	-----	-----	----
Nitrogen mustard N-oxide	Ethanamine, 2-chloro-N-(2-chloroethyl)- N-methyl-, N-oxide	126-85-2	----
Nitrogen mustard, n-oxide, hydrochloride salt	-----	-----	----
Nitroglycerin	1,2,3-Propanetriol, trinitrate	55-63-0	P081
p-Nitrophenol	Phenol, 4-nitro-	100-02-7	U170
2-Nitropropane	Propane, 2-nitro-	79-46-9	U171
Nitrosamines, N.O.S.*	-----	35576-91-1	----
N-Nitrosodi-n-butylamine	1-Butanamine, N-butyl-N-nitroso-	924-16-3	U172
N-Nitrosodiethanolamine	Ethanol, 2,2'-(nitrosoimino)bis-	1116-54-7	U173
N-Nitrosodiethylamine	Ethanamine, N-ethyl-N-nitroso-	55-18-5	U174
N-Nitrosodimethylamine	Methanamine, N-methyl-N-nitroso-	62-75-9	P082
N-Nitroso-N-ethylurea	Urea, N-ethyl-N-nitroso-	759-73-9	U176
N-Nitrosomethylethylamin e	Ethanamine, N-methyl-N-nitroso-	10595-95-6	----
N-Nitroso-N-methylurea	Urea, N-methyl-N-nitroso-	684-93-5	U177
N-Nitroso-N- methylurethane	Carbamic acid, methylnitroso-, ethyl ester	615-53-2	U178
N-Nitrosomethylvinylamin e	Vinylamine, N-methyl-N-nitroso-	4549-40-0	P084
N-Nitrosomorpholine	Morpholine, 4-nitroso-	59-89-2	----
N-Nitrosornicotine	Pyridine, 3-(1-nitroso-2-pyrrolidinyl)-,(S)-	16543-55-8	----
N-Nitrosopiperidine	Piperidine, 1-nitroso-	100-75-4	U179

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
N-Nitrosopyrrolidine	Pyrrolidine, 1-nitroso-	930-55-2	U180
N-Nitrososarcosine	Glycine, N-methyl-N-nitroso-	13256-22-9	----
5-Nitro-o-toluidine	Benzenamine, 2-methyl-5-nitro-	99-55-8	U181
Octachlorodibenzo-p-dioxin (OCDD)	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	3268-87-9	----
Octachlorodibenzofuran (OCDF)	1,2,3,4,6,7,8,9-Octachlorodibenzofuran	39001-02-0	----
Octamethylpyro phosphoramidate	Diphosphoramidate, octamethyl-	152-16-9	P085
Osmium tetroxide	Osmium oxide OsO ₄ , (T-4)-1,3,5-	20816-12-0	P087
Oxamyl	Ethanimidothioic acid, 2-(dimethylamino)- N-[[[(methylamino)carbonyl]oxy]-2-oxo-, methyl ester	23135-22-0	P194
Paraldehyde	Trioxane, 2,4,6-trimethyl-	123-63-7	U182
Parathion	Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester	56-38-2	P089
Pebulate	Carbamothioic acid, butylethyl-, S-propyl ester	1114-71-2	----
Pentachlorobenzene	Benzene, pentachloro-	608-93-5	U183
Pentachlorodibenzo-p-dioxins	-----	-----	----
Pentachlorodibenzofurans	-----	-----	----
Pentachloroethane	Ethane, pentachloro-	76-01-7	U184
Pentachloronitrobenzene (PCNB)	Benzene, pentachloronitro-	82-68-8	U185
Pentachlorophenol	Phenol, pentachloro-	87-86-5	See F027
Phenacetin	Acetamide, N-(4-ethoxyphenyl)-	62-44-2	U187
Phenol	Same	108-95-2	U188
Phenylenediamine	Benzenediamine	25265-76-3	----

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
1,2-Phenylenediamine	1,2-Benzenediamine	95-54-5	----
1,3-Phenylenediamine	1,3-Benzenediamine	108-45-2	----
Phenylmercury acetate	Mercury, (acetato-O)phenyl-	62-38-4	P092
Phenylthiourea	Thiourea, phenyl-	103-85-5	P093
Phosgene	Carbonic dichloride	75-44-5	P095
Phosphine	Same	7803-51-2	P096
Phorate	Phosphorodithioic acid, O,O-diethyl S-[(ethylthio)methyl] ester	298-02-2	P094
Phthalic acid esters, N.O.S.*	-----	-----	----
Phthalic anhydride	1,3-Isobenzofurandione	85-44-9	U190
Physostigmine	Pyrrolo[2,3-b]indol-5-01, 1,2,3,3a,8,8a-hexahydro- 1,3a,8-trimethyl-, methylcarbamate (ester),)3aS-cis)-	57-47-6	P204
Physostigmine salicylate	Benzoic acid, 2-hydroxy-, compd. with (3aS-cis)-1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethylpyrrolo[2,3-b]indol-5-yl methylcarbamate ester (1:1)	57-64-7	P188
2-Picoline	Pyridine, 2-methyl-	109-06-8	U191
Polychlorinated biphenyls, N.O.S.*	-----	-----	----
Potassium cyanide	Potassium cyanide K(CN)	151-50-8	P098
Potassium dimethyldithiocarbamate	Carbamodithioic acid, dimethyl, potassium salt	128-03-0	----
Potassium n-hydroxymethyl-n- methyl-dithiocarbamate	Carbamodithioic acid, (hydroxymethyl)methyl-, monopotassium salt	51026-28-9	----
Potassium n-methyldithiocarbamate	Carbamodithioic acid, methyl-monopotassium salt	137-41-7	----
Potassium pentachlorophenate	Pentachlorophenol, potassium salt	7778736	None

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Potassium silver cyanide	Argentate(1-), bis(cyano-C)-, potassium	506-61-6	P099
Promecarb	Phenol, 3-methyl-5-(1-methylethyl)-, methyl carbamate	2631-37-0	P201
Pronamide	Benzamide,5-dichloro-N-(1,1-dimethyl-2-propynyl)-	23950-58-5	U192
1,3-Propane sultone	1,2-Oxathiolane, 2,2-dioxide	1120-71-4	U193
Propham	Carbamic acid, phenyl-, 1-methylethyl ester	122-42-9	U373
Propoxur	Phenol, 2-(1-methylethoxy)-, methylcarbamate	114-26-1	U411
n-Propylamine	1-Propanamine	107-10-8	U194
Propargyl alcohol	2-Propyn-1-ol	107-19-7	P102
Propylene dichloride	propane, 1,2-dichloro-	78-87-5	U083
1,2-Propylenimine	Aziridine, 2-methyl-	75-55-8	P067
Propylthiouracil	4(1H)-Pyrimidinone, 2,3-dihydro-6-propyl-2-thioxo-	51-52-5	----
Prosulfocarb	Carbamothioic acid, dipropyl-, S-(phenylmethyl) ester	52888-80-9	U387
Pyridine	Same	110-86-1	U196
Reserpine	Yohimban-16-carboxylic acid, 1,17-dimethoxy- 18-[(3,4,5-trimethoxybenzoyl)oxy]-,methyl ester, (3beta,16beta,17alpha,18beta,20alpha)-	50-55-5	U200
Resorcinol	1,3-Benzenediol	108-46-3	U201
Safrole	1,3-Benzodioxole, 5-(2-propenyl)-	94-59-7	U203
Selenium	Same	7782-49-2	----
Selenium compounds, N.O.S.*	-----	-----	----
Selenium dioxide	Selenious acid	7783-00-8	U204
Selenium sulfide	Selenium sulfide SeS ₂	7488-56-4	U205

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Selenium, tetrakis (dimethyl-dithiocarbamate)	Carbamodithioic acid, dimethyl-, tetraanhydrosulfide with orthothioselenious acid	144-34-3	----
Selenourea	Same	630-10-4	P103
Silver	Same	7440-22-4	----
Silver compounds, N.O.S.*	-----	-----	----
Silver cyanide	Silver cyanide Ag(CN)	506-64-9	P104
Silvex (2,4,5-TP)	Propanoic acid, 2-(2,4,5-trichlorophenoxy)-	93-72-1	See F027
Sodium cyanide	Sodium cyanide Na(CN)	143-33-9	P106
Sodium dibutyldithiocarbamate	Carbamodithioic acid, dibutyl-, sodium salt	136-30-1	----
Sodium diethyldithiocarbamate	Carbamodithioic acid, diethyl-, sodium salt	148-18-5	----
Sodium dimethyldithiocarbamate	Carbamodithioic acid, dimethyl-, sodium salt	128-04-1	----
Sodium pentachlorophenate	Pentachlorophenol, sodium salt	131522	None
Streptozotocin	D-Glucose, 2-deoxy-2-[[[(methylnitrosoamino)carbonyl]amino]-	18883-66-4	U206
Strychnine	Strychnidin-10-one	57-24-9	P108
Strychnine salts	-----	-----	P108
Sulfallate	Carbamodithioic acid, diethyl-, 2-chloro-2-propenyl ester	95-06-7	----
TCDD	Dibenzo[b,e][1,4]dioxin, 2,3,7,8-tetrachloro-	1746-01-6	----
Tetrabutylthiuram disulfide	Thioperoxydicarbonic diamide, tetrabutyl	1634-02-2	----
1,2,4,5-Tetrachlorobenzene	Benzene, 1,2,4,5-tetrachloro-	95-94-3	U207
Tetrachlorodibenzo-p-dioxins	-----	-----	----
Tetrachlorodibenzofurans	-----	-----	----

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Tetrachloroethane, N.O.S.*	Ethane, tetrachloro-, N.O.S.	25322-20-7	----
1,1,1,2-Tetrachloroethane	Ethane, 1,1,1,2-tetrachloro-	630-20-6	U208
1,1,2,2-Tetrachloroethane	Ethane, 1,1,2,2-tetrachloro-	79-34-5	U209
Tetrachloroethylene	Ethene, tetrachloro-	127-18-4	U210
2,3,4,6-Tetrachlorophenol	Phenol, 2,3,4,6-tetrachloro-	58-90-2	See F027
2,3,4,6-Tetrachlorophenol, potassium salt	Same	53535276	None
2,3,4,6-Tetrachlorophenol, sodium salt	Same	25567559	None
Tetraethyldithiopyro phosphate	Thiodiphosphoric acid, tetraethyl ester	3689-24-5	P109
Tetraethyl lead	Plumbane, tetraethyl-	78-00-2	P110
Tetraethyl pyrophosphate	Diphosphoric acid, tetraethyl ester	107-49-3	P111
Tetramethylthiuram monosulfide	Bis(dimethylthiocarbamoyl) sulfide	97-74-5	----
Tetranitromethane	Methane, tetranitro-	509-14-8	P112
Thallium	Same	7440-28-0	----
Thallium compounds, N.O.S.*	-----	-----	----
Thallic oxide	Thallium oxide Tl_2O_3	1314-32-5	P113
Thallium(I) acetate	Acetic acid, thallium(1+) salt	563-68-8	U214
Thallium(I) carbonate	Carbonic acid, dithallium(1+) salt	6533-73-9	U215
Thallium(I) chloride	Thallium chloride $TlCl$	7791-12-0	U216
Thallium(I) nitrate	Nitric acid, thallium(1+) salt	10102-45-1	U217
Thallium selenite	Selenious acid, dithallium(1+) salt	12039-52-0	P114
Thallium(I) sulfate	Sulfuric acid, dithallium(1+) salt	7446-18-6	P115
Thioacetamide	Ethanethioamide	62-55-5	U218

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Thiodicarb	Ethanimidothioic acid, N,N'-[thiobis [(methylimino)carbonyloxy]]bis-, dimethyl ester	59669-26-0	U410
Thiofanox	2-Butanone, 3,3-dimethyl-1-(methylthio)-, 0-[(methylamino)carbonyl] oxime	39196-18-4	P045
Thiomethanol	Methanethiol	74-93-1	U153
Thiophanate-methyl	Carbamic acid, [1,2-phenylenebis (iminocarbonothioyl)]bis-, dimethyl ester	23564-05-8	U409
Thiophenol	Benzenethiol	108-98-5	P014
Thiosemicarbazide	Hydrazinecarbothioamide	79-19-6	P116
Thiourea	Same	62-56-6	U219
Thiram	Thioperoxydicarbonicdiamide [(H ₂ N)C(S)] ₂ S ₂ , tetramethyl-	137-26-8	U244
Tirpate	1,3-Dithiolane-2-carboxaldehyde, 2,4-dimethyl-, O-[(methylamino)carbonyl] oxime	26419-73-8	P185
Toluene	Benzene, methyl-	108-88-3	U220
Toluenediamine	Benzenediamine, ar-methyl-	25376-45-8	U221
Toluene-2,4-diamine	1,3-Benzenediamine, 4-methyl-	95-80-7	----
Toluene-2,6-diamine	1,3-Benzenediamine, 2-methyl-	823-40-5	----
Toluene-3,4-diamine	1,2-Benzenediamine, 4-methyl-	496-72-0	----
Toluenediisocyanate	Benzene, 1,3-diisocyanatomethyl-	26471-62-5	U223
o-Toluidine	Benzenamine, 2-methyl-	95-53-4	U328
o-Toluidine hydrochloride	Benzenamine, 2-methyl-, hydrochloride	636-21-5	U222
p-Toluidine	Benzenamine, 4-methyl-	106-49-0	U353
Toxaphene	Same	8001-35-2	P123
Triallate	Carbamothioic acid, bis(1-methylethyl)-, S-(2,3,3-trichloro-2-propenyl) ester	2303-17-5	U389

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
1,2,4-Trichlorobenzene	Benzene, 1,2,4-trichloro-	120-82-1	----
1,1,2-Trichloroethane	Ethane, 1,1,2-trichloro-	79-00-5	U227
Trichloroethylene	Ethene, trichloro-	79-01-6	U228
Trichloromethanethiol	Methanethiol, trichloro-	75-70-7	P118
Trichloromono fluoromethane	Methane, trichlorofluoro-	75-69-4	U121
2,4,5-Trichlorophenol	Phenol, 2,4,5-trichloro-	95-95-4	See F027
2,4,6-Trichlorophenol	Phenol, 2,4,6-trichloro-	88-06-2	See F027
2,4,5-T	Acetic acid, (2,4,5-trichlorophenoxy)-	93-76-5	See F027
Trichloropropane, N.O.S.*	-----	25735-29-9	----
1,2,3-Trichloropropane	Propane, 1,2,3-trichloro-	96-18-4	----
Triethylamine	Ethanamine, N,N-diethyl	121-44-8	U404
O,O,O-Triethyl phosphorothioate	Phosphorothioic acid, O,O,O-triethyl ester	126-68-1	----
1,3,5-Trinitrobenzene	Benzene, 1,3,5-trinitro-	99-35-4	U234
Tris(1-aziridinyl) phosphine sulfide	Aziridine, 1,1',1''-phosphinothioylidynetris-	52-24-4	----
Tris(2,3-dibromopropyl) phosphate	1-Propanol, 2,3-dibromo-, phosphate (3:1)	126-72-7	U235
Trypan blue	2,7-Naphthalenedisulfonic acid, 3,3'-[(3,3'-dimethyl[1,1'-biphenyl] -4,4'-diyl)bis(azo)]- bis[5-amino-4-hydroxy-, tetrasoidum salt	72-57-1	U236
Uracil mustard	2,4-(1H,3H)-Pyrimidinedione, 5-[bis(2-chloroethyl)amino]-	66-75-1	U237
Vanadium pentoxide	Vanadium oxide V ₂ O ₅	1314-62-1	P120
Vernolate	Carbamothioic acid, dipropyl-, S-propyl ester	1929-77-7	----
Vinyl chloride	Ethene, chloro-	75-01-4	U043

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	EPA Haz. Waste No.
Warfarin	2H-1-Benzopyran-2-one,4-hydroxy-3-(3-oxo-1-phenylbutyl)-, when present at concentrations less than 0.3%	81-81-2	U248
Warfarin	2H-1-Benzopyran-2-one,4-hydroxy-3-(3-oxo-1-phenylbutyl)-, when present at concentrations greater than 0.3%	81-81-2	P001
Warfarin salts,	when present at concentrations less than 0.3%	-----	U248
Warfarin salts,	when present at concentrations greater than 0.3%	-----	P001
Zinc cyanide	Zinc cyanide $Zn(CN)_2$	557-21-1	P121
Zinc phosphide	Zinc phosphide Zn_3P_2 , when present at concentrations of 10% or less	1314-84-7	U249
Zinc phosphide	Zinc phosphide Zn_3P_2 , when present at concentrations of greater than 10%	1314-84-7	P122
Ziram	Zinc, bis(dimethylcarbamo-dithioato-S,S')-, (T-4)-	137-30-4	P205
* The abbreviation N.O.S. (not otherwise specified) signifies those members of the general class not specifically listed by name in this appendix.			

~~[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."]~~

3745-51-20

Characteristics of hazardous waste- general.

- (A) A "waste," as defined in rule 3745-51-02 of the Administrative Code, which is not excluded from regulation as a hazardous waste under paragraph (B) of rule 3745-51-04 of the Administrative Code, is a hazardous waste if the waste exhibits any of the characteristics identified in rules 3745-51-20 to 3745-51-24 of the Administrative Code.

[Comment: Rule 3745-52-11 of the Administrative Code provides the generator's responsibility to determine whether his waste exhibits one or more of the characteristics identified in rules 3745-51-20 to 3745-51-24 of the Administrative Code.]

- (B) A hazardous waste which is identified by a characteristic identified in rules 3745-51-20 to 3745-51-24 of the Administrative Code is assigned every EPA hazardous waste number that is applicable as identified in rules 3745-51-20 to 3745-51-24 of the Administrative Code. This number shall be used in complying with the requirement to notify Ohio EPA or U.S. EPA of regulated waste activity and all applicable recordkeeping and reporting requirements of Chapters 3745-52, 3745-53, 3745-54 to 3745-57, 3745-65 to 3745-69, 3745-205, 3745-256, 3745-266, and 3745-270, and rules 3745-50-40 to 3745-50-235 of the Administrative Code.
- (C) For the purposes of rules 3745-51-20 to 3745-51-24 of the Administrative Code, the director will consider a sample obtained using any of the applicable sampling methods specified in the appendix to this rule to be a representative sample within the meaning of Chapter 3745-50 of the Administrative Code.

[Comment 1: Since the sampling methods in the appendix to this rule are not ~~being~~ formally adopted by Ohio EPA, a person who wishes to employ an alternative sampling method, including previously approved equivalent ASTM methods, is not required to demonstrate the equivalency of ~~his~~that method under the procedures in 40 CFR 260.20 and 40 CFR 260.21.]

[Comment 2: 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."]

Effective: 9/29/2021

Five Year Review (FYR) Dates: 6/7/2021 and 06/05/2026

CERTIFIED ELECTRONICALLY

Certification

09/14/2021

Date

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3745-51-20

APPENDIX

1

Appendix to rule 3745-51-20 of the Administrative Code

Representative Sampling Methods

The methods and equipment used for sampling waste materials ~~will~~ vary with the form and consistency of the waste materials to be sampled. Samples collected using the sampling protocols listed below, for sampling waste with properties similar to the indicated materials, ~~will be~~ are considered by Ohio EPA to be representative of the waste.

The following are newer approved equivalent methods:

Standard Guide for Representative Sampling for Management of Waste and Media,
ASTM Standard D6044-96(2009)

Extremely viscous liquid- ASTM Standard D140/D140M-14

Crushed or powdered material- ASTM Standard D346/D346M-11

Practice for Sampling Soils and Contaminated Media with Hand Operated Bucket
Auger, D6907-2005(2010)

The following are older approved equivalent methods:

Extremely viscous liquid- ASTM Standard D140-70

Crushed or powdered material- ASTM Standard D346-75

Soil or rock-like material- ASTM Standard D420-69

Soil-like material- ASTM Standard D1452-65

Fly ash-like material- ASTM Standard D2234-76

Containerized liquid wastes- "COLISWA"

Liquid waste in pits, ponds, lagoons, and similar reservoirs- "Pond Sampler"

This manual also contains additional information on application of these protocols.

[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."]

3745-51-21

Characteristic of ignitability.

(A) A waste exhibits the characteristic of ignitability if a representative sample of the waste has any of the following properties:

- (1) The waste is a liquid, other than ~~an aqueous~~ a solution containing less than twenty-four per cent alcohol by volume and at least fifty per cent water by weight, and that has a flash point less than sixty degrees Celsius (C) [one hundred forty degrees Fahrenheit (F)], as determined by ~~a "Pensky-Martens Closed Cup Tester," using the test method specified in "ASTM Standard D-93-79 or D-93-80," or a "Setaflash Closed Cup Tester," using the test method specified in "ASTM Standard D-3278-78," using~~ "American Society for Testing and Materials (ASTM)" standard ASTM D93-79, D93-80, D3278-78, D8174-18, or D8175-18 as specified in SW-846 test method 1010B or 1020C.
- (2) The waste is not a liquid and, under standard temperature and pressure, can cause fire through friction, absorption of moisture, or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that the waste creates a hazard.
- (3) The waste is an ignitable compressed gas.
 - (a) The term "compressed gas" designates any materials or mixtures having in the container an absolute pressure exceeding forty pounds per square inch (psi) at seventy degrees F or, regardless of the pressure at seventy degrees F, having an absolute pressure exceeding one hundred four psi at one hundred thirty degrees F; or any liquid flammable material having a vapor pressure exceeding forty psi absolute at one hundred degrees F as determined by ~~"ASTM Test D323"~~ D323-20a."
 - (b) A compressed gas is characterized as ignitable if any one of the following occurs:
 - (i) Either a mixture of thirteen per cent or less (by volume) with air forms a flammable mixture, or the flammable range with air is wider than twelve per cent regardless of the lower limit. These limits are determined at atmospheric temperature and pressure. The method of sampling and test procedure shall be ~~acceptable to the "Bureau of Explosives" and the~~ ASTM E681-85 or other equivalent methods approved by the ~~director of the~~ associate administrator, "Pipeline and Hazardous Materials Safety Administration" of the U.S. department of transportation (U.S. DOT) ~~(see [Comment 2] of this rule).~~

~~(ii) Using the "Bureau of Explosives" flame protection apparatus (see [Comment 1] of this rule), the flame projects more than eighteen inches beyond the ignition source with valve opened fully, or, the flame flashes back and burns at the valve with any degree of valve opening.~~

~~(iii) Using the "Bureau of Explosives" open drum apparatus (see [Comment 1] of this rule), there is any significant propagation of flame away from the ignition source.~~

~~(iv) Using the "Bureau of Explosives" closed drum apparatus (see [Comment 1] of this rule), there is any explosion of the vapor-air mixture in the drum.~~

(ii) The compressed gas is determined to be flammable or extremely flammable using 49 CFR 173.115(l).

(4) The waste is an oxidizer. An "oxidizer," for the purpose of this rule, is a substance such as chlorate, permanganate, inorganic peroxide, or a nitrate, that yields oxygen readily to stimulate the combustion of organic matter ~~(see [Comment 4] of this rule).~~

(a) An organic compound containing the bivalent -O-O- structure and which may be considered a derivative of hydrogen peroxide where one or more of the hydrogen atoms have been replaced by organic radicals shall be classed as an "organic peroxide" ~~(see [Comment 4] of this rule unless:~~

(i) The material meets the definition of a ~~"Class 1" explosive in "Division 1.1," "Division 1.2," or "Division 1.3;"~~ explosive, as described in paragraph (A)(8) of rule 3745-51-23 of the Administrative Code, in which case, the material is classed as an explosive;;

(ii) The material is forbidden to be offered for transportation according to 49 CFR 172.101 and 49 CFR 173.21;;

(iii) The predominant hazard of the material containing an organic peroxide is other than that of an organic peroxide; or

(iv) According to data on file with the "Pipeline and Hazardous Materials Safety Administration" in the U.S. DOT ~~(see [Comment 3] of this rule),~~ the material does not present a hazard in transportation.

(b) [Reserved.]

(B) A waste that exhibits the characteristic of ignitability has the EPA hazardous waste number of D001.

~~{Comment 1: A description of the "Bureau of Explosives" flame projection apparatus, open drum apparatus, closed drum apparatus, and the method of tests may be procured from the "Bureau of Explosives" at www.boe.aar.com.}~~

~~{Comment 2: As part of a U.S. DOT reorganization, the "Office of Hazardous Materials Technology" (OHMT), which was the office listed in the 1980 publication of 49 CFR 173.300 to approve sampling and test procedures for a flammable gas, ceased operations on February 20, 2005. OHMT programs moved to the "Pipeline and Hazardous Materials Safety Administration" (PHMSA) in the U.S. DOT.}~~

~~{Comment 3: As part of a U.S. DOT reorganization, the "Research and Special Programs Administration" (RSPA) which was the office listed in the 1980 publication of 49 CFR 173.151a to determine that a material does not present a hazard in transport, ceased operations on February 20, 2005. RSPA programs moved to the "Pipeline and Hazardous Materials Safety Administration" (PHMSA) in the U.S. DOT.}~~

~~{Comment 4: The U.S. DOT regulatory definition of an "oxidizer" is in 49 CFR 173.127, and the definition of an "organic peroxide" is in 49 CFR 173.128; see also 49 CFR 173.152. An organic peroxide is a type of oxidizer.}~~

~~{Comment 5: 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."}~~

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10/31/2015, 09/29/2021

3745-51-22

Characteristic of corrosivity.

(A) A waste exhibits the characteristic of corrosivity if a representative sample of the waste has either of the following properties:

- (1) ~~¶~~The waste is aqueous and has a pH less than or equal to two or greater than or equal to 12.5, as determined by a pH meter using method 9040C in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" U.S. EPA publication SW-846.
- (2) ~~¶~~The waste is a liquid and corrodes steel (SAE 1020) at a rate greater than 6.35 millimeters (0.25 inch) per year at a test temperature of fifty-five degrees Celsius (one hundred thirty degrees Fahrenheit) as determined by method 1110A in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" U.S. EPA publication SW-846.

(B) A waste that exhibits the characteristic of corrosivity has the EPA hazardous waste number of D002.

[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."]

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10/31/2015

3745-51-23

Characteristic of reactivity.

(A) A waste exhibits the characteristic of reactivity if a representative sample of the waste has any of the following properties:

- (1) ~~The waste~~ is normally unstable and readily undergoes violent change without detonating.
- (2) ~~The waste~~ reacts violently with water.
- (3) ~~The waste~~ forms potentially explosive mixtures with water.
- (4) When mixed with water, ~~the waste~~ generates toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment.
- (5) ~~The waste~~ is a cyanide or sulfide bearing waste which, when exposed to pH conditions between two and 12.5, can generate toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment.
- (6) ~~The waste~~ is capable of detonation or explosive reaction if ~~the waste~~ is subjected to a strong initiating source or if heated under confinement.
- (7) ~~The waste~~ is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure.
- (8) ~~The waste~~ is a "forbidden explosive" as defined in 49 CFR 173.54, or is an "explosive in Class 1" in "Division 1.1," "Division 1.2," or "Division 1.3" as defined in 49 CFR 173.50 and 49 CFR 173.53.

(B) A waste that exhibits the characteristic of reactivity has the EPA hazardous waste number of D003.

[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."]

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3745-51-24

Toxicity characteristic.

- (A) A waste (except manufactured gas plant waste) exhibits the characteristic of toxicity if, using the toxicity characteristic leaching procedure, test method 1311 in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," U.S. EPA publication SW-846, the extract from a representative sample of the waste contains any of the contaminants listed in the table in this rule at a concentration equal to or greater than the respective value given in that table. Where the waste contains less than 0.5 per cent filterable solids, the waste itself, after filtering using the methodology outlined in method 1311, is considered to be the extract for the purposes of this rule.
- (B) A waste that exhibits the characteristic of toxicity has the EPA hazardous waste number specified in the table in this rule which corresponds to the toxic contaminant ~~causing~~ that causes the waste to be hazardous.

Table			
Maximum Concentrations of Contaminants for the Toxicity Characteristic			
EPA Haz. Waste Number	Contaminant	CAS ¹ Number	Regulatory Level (mg/L)
D004	Arsenic	7440-38-2	5.0
D005	Barium	7440-39-3	100.0
D018	Benzene	71-43-2	0.5
D006	Cadmium	7440-43-9	1.0
D019	Carbon tetrachloride	56-23-5	0.5
D020	Chlordane	57-74-9	0.03
D021	Chlorobenzene	108-90-7	100.0
D022	Chloroform	67-66-3	6.0
D007	Chromium	7440-47-3	5.0
D023	o-Cresol	95-48-7	200.0 ³

D024	m-Cresol	108-39-4	200.0 ³
D025	p-Cresol	106-44-5	200.0 ³
D026	Cresol	-----	200.0 ³
D016	2,4-D	94-75-7	10.0
D027	1,4-Dichlorobenzene	106-46-7	7.5
D028	1,2-Dichloroethane	107-06-2	0.5
D029	1,1-Dichloroethylene	75-35-4	0.7
D030	2,4-Dinitrotoluene	121-14-2	0.13 ²
D012	Endrin	72-20-8	0.02
D031	Heptachlor (and its epoxide)	76-44-8	0.008
D032	Hexachlorobenzene	118-74-1	0.13 ²
D033	Hexachlorobutadiene	87-68-3	0.5
D034	Hexachloroethane	67-72-1	3.0
D008	Lead	7439-92-1	5.0
D013	Lindane	58-89-9	0.4
D009	Mercury	7439-97-6	0.2
D014	Methoxychlor	72-43-5	10.0
D035	Methyl ethyl ketone	78-93-3	200.0
D036	Nitrobenzene	98-95-3	2.0
D037	Pentachlorophenol	87-86-5	100.0
D038	Pyridine	110-86-1	5.0 ²
D010	Selenium	7782-49-2	1.0
D011	Silver	7440-22-4	5.0

D039	Tetrachloroethylene	127-18-4	0.7
D015	Toxaphene	8001-35-2	0.5
D040	Trichloroethylene	79-01-6	0.5
D041	2,4,5-Trichlorophenol	95-95-4	400.0
D042	2,4,6-Trichlorophenol	88-06-2	2.0
D017	2,4,5-TP (Silvex)	93-72-1	1.0
D043	Vinyl chloride	75-01-4	0.2
¹ Chemical abstracts service number.			
² Quantitation limit is greater than the calculated regulatory level. The quantitation limit therefore becomes the regulatory level.			
³ If o-, m-, and p-Cresol concentrations cannot be differentiated, the total cresol (D026) concentration is used. The regulatory level of total cresol is 200 mg/L.			

[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."]

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3745-51-30

Lists of hazardous wastes - general.

(A) A waste is a hazardous waste if ~~it~~the waste is listed as such in rules 3745-51-30 to 3745-51-35 of the Administrative Code, unless ~~it~~the waste has been excluded under 40 ~~CFR~~C.F.R. 260.20 and 40 ~~CFR~~C.F.R. 260.22.

~~[Comment: See paragraph (E) of this rule for wastes generated in Ohio that have been excluded from listing as hazardous waste under rules 3745-51-30 to 3745-51-35 of the Administrative Code.]~~

(B) The administrator ~~will~~shall indicate ~~his~~the basis for listing the classes or types of wastes listed by employing one or more of the following hazard codes:

Ignitable waste	(I)
Corrosive waste	(C)
Reactive waste	(R)
Toxicity characteristic waste	(E)
Acute hazardous waste	(H)
Toxic waste	(T)

The appendix to this rule identifies the constituents which caused the administrator to list the waste as a toxicity characteristic waste (E) or toxic waste (T) as shown in rules 3745-51-31 and 3745-51-32 of the Administrative Code.

(C) Each hazardous waste listed in rules 3745-51-30 to 3745-51-35 of the Administrative Code is assigned an EPA hazardous waste number which precedes the name of the waste. This number ~~must~~shall be used in complying with the requirement to notify Ohio EPA or U.S. EPA of regulated waste activity and certain recordkeeping and reporting requirements under Chapters 3745-52, 3745-53, 3745-54 to 3745-57, 3745-65 to 3745-69, 3745-205, 3745-256, 3745-270, and rules 3745-50-40 to 3745-50-235 of the Administrative Code.

(D) The following hazardous wastes listed in rule 3745-51-31 of the Administrative Code are subject to the exclusion limits for acutely hazardous wastes established in rule ~~3745-51-05~~3745-52-13 of the Administrative Code: EPA hazardous waste numbers F020, F021, F022, F023, F026, and F027.

[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."]

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Appendix to rule 3745-51-30 of the Administrative Code

Basis for Listing Hazardous Waste

EPA hazardous waste No. <u>number</u>	Hazardous constituents for which listed
F001	Tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, chlorinated fluorocarbons.
F002	Tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, ortho-dichlorobenzene, trichlorofluoromethane.
F003	N.A.
F004	Cresols and cresylic acid, nitrobenzene.
F005	Toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, 2-ethoxyethanol, benzene, 2-nitropropane.
F006	Cadmium, hexavalent chromium, nickel, cyanide (complexed).
F007	Cyanide (salts).
F008	Cyanide (salts).
F009	Cyanide (salts).
F010	Cyanide (salts).
F011	Cyanide (salts).
F012	Cyanide (complexed).
F019	Hexavalent chromium, cyanide (complexed).
F020	Tetra- and pentachlorodibenzo-p-dioxins; tetra and pentachlorodi-benzofurans; tri- and tetrachlorophenols and their chlorophenoxy derivative acids, esters, ethers, amine and other salts.
F021	Penta- and hexachlorodibenzo-p-dioxins; penta- and hexachlorodibenzofurans; pentachlorophenol and its derivatives.
F022	Tetra-, penta-, and hexachlorodibenzo-p-dioxins; tetra-, penta-, and hexachlorodibenzofurans.
F023	Tetra-, and pentachlorodibenzo-p-dioxins; tetra- and pentachlorodibenzofurans; tri- and tetrachlorophenols and their chlorophenoxy derivative acids, esters, ethers, amine and other salts.

AMENDED APPENDIX

EPA hazardous waste No. number	Hazardous constituents for which listed
F024	Chloromethane, dichloromethane, trichloromethane, carbon tetrachloride, chloroethylene, 1,1-dichloroethane, 1,2-dichloroethane, trans-1,2-dichloroethylene, 1,1-dichloroethylene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethylene, 1,1,1,2-tetra-chloroethane, 1,1,2,2-tetrachloroethane, tetrachloroethylene, pentachloroethane, hexachloroethane, allyl chloride (3-chloropropene), dichloropropane, dichloropropene, 2-chloro-1,3-butadiene, hexachloro-1,3-butadiene, hexachlorocyclopentadiene, hexachlorocyclohexane, benzene, chlorobenzene, dichlorobenzenes, 1,2,4-trichlorobenzene, tetrachlorobenzene, pentachlorobenzene, hexachlorobenzene, toluene, naphthalene.
F025	Chloromethane; dichloromethane; trichloromethane; carbon tetrachloride; chloroethylene; 1,1-dichloroethane; 1,2-dichloroethane; trans-1,2-dichloroethylene; 1,1-dichloroethylene; 1,1,1-trichloroethane; 1,1,2-trichloroethane; trichloroethylene; 1,1,1,2-tetrachloroethane; 1,1,2,2-tetrachloroethane; tetrachloroethylene; pentachloroethane; hexachloroethane; allyl chloride (3-chloropropene); dichloropropane; dichloropropene; 2-chloro-1,3-butadiene; hexachloro-1,3-butadiene; hexachlorocyclopentadiene; benzene; chlorobenzene; dichlorobenzene; 1,2,4-trichlorobenzene; tetrachlorobenzene; pentachlorobenzene; hexachlorobenzene; toluene; naphthalene.
F026	Tetra-, penta-, and hexachlorodibenzo-p-dioxins; tetra-, penta-, and hexachlorodibenzofurans.
F027	Tetra-, penta-, and hexachlorodibenzo-p-dioxins; tetra-, penta-, and hexachlorodibenzofurans; tri-, tetra-, and pentachlorophenols and their chlorophenoxy derivative acids, esters, ethers, amine and other salts.
F028	Tetra-, penta-, and hexachlorodibenzo-p-dioxins; tetra-, penta-, and hexachlorodibenzofurans; tri-, tetra-, and pentachlorophenols and their chlorophenoxy derivative acids, esters, ethers, amine and other salts.
F032	Benz(a)anthracene, benzo(a)pyrene, dibenz(a,h)-anthracene, indeno(1,2,3-cd)pyrene, pentachlorophenol, arsenic, chromium, tetra-, penta-, hexa-, heptachlorodibenzo-p-dioxins, tetra-, penta-, hexa-, heptachlorodibenzofurans.
F034	Benz(a)anthracene, benzo(k)fluoranthene, benzo(a)pyrene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, naphthalene, arsenic, chromium.

AMENDED APPENDIX

EPA hazardous waste <u>Number</u>	Hazardous constituents for which listed
F035	Arsenic, chromium, lead.
F037	Benzene, benzo(a)pyrene, chrysene, lead, chromium.
F038	Benzene, benzo(a)pyrene, chrysene, lead, chromium.
F039	All constituents for which treatment standards are specified for multi-source leachate (wastewaters and nonwastewaters) under the table in rule 3745-270-40 of the Administrative Code.
K001	Pentachlorophenol, phenol, 2-chlorophenol, p-chloro-m-cresol, 2,4-dimethylphenyl, 2,4-dinitrophenol, trichlorophenols, tetrachlorophenols, 2,4-dinitrophenol, creosote, chrysene, naphthalene, fluoranthene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benz(a)anthracene, dibenz(a)anthracene, acenaphthalene.
K002	Hexavalent chromium, lead
K003	Hexavalent chromium, lead.
K004	Hexavalent chromium.
K005	Hexavalent chromium, lead.
K006	Hexavalent chromium.
K007	Cyanide (complexed), hexavalent chromium.
K008	Hexavalent chromium.
K009	Chloroform, formaldehyde, methylene chloride, methyl chloride, paraldehyde, formic acid.
K010	Chloroform, formaldehyde, methylene chloride, methyl chloride, paraldehyde, formic acid, chloroacetaldehyde.
K011	Acrylonitrile, acetonitrile, hydrocyanic acid.
K013	Hydrocyanic acid, acrylonitrile, acetonitrile.
K014	Acetonitrile, acrylamide.
K015	Benzyl chloride, chlorobenzene, toluene, benzotrichloride.
K016	Hexachlorobenzene, hexachlorobutadiene, carbon tetrachloride, hexachloroethane, perchloroethylene.

AMENDED APPENDIX

EPA hazardous waste No. number	Hazardous constituents for which listed
K017	Epichlorohydrin, chloroethers [bis(chloromethyl) ether and bis(2-chloroethyl) ethers], trichloropropane, dichloropropanols.
K018	1,2-dichloroethane, trichloroethylene, hexachlorobutadiene, hexachlorobenzene.
K019	Ethylene dichloride, 1,1,1-trichloroethane, 1,1,2-trichloroethane, tetrachloroethanes (1,1,2,2-tetrachloroethane and 1,1,1,2-tetrachloroethane), trichloroethylene, tetrachloroethylene, carbon tetrachloride, chloroform, vinyl chloride, vinylidene chloride.
K020	Ethylene dichloride, 1,1,1-trichloroethane, 1,1,2-trichloroethane, tetrachloroethanes (1,1,2,2-tetrachloroethane and 1,1,1,2-tetrachloroethane), trichloroethylene, tetrachloroethylene, carbon tetrachloride, chloroform, vinyl chloride, vinylidene chloride.
K021	Antimony, carbon tetrachloride, chloroform.
K022	Phenol, tars (polycyclic aromatic hydrocarbons).
K023	Phthalic anhydride, maleic anhydride.
K024	Phthalic anhydride, 1,4-naphthoquinone.
K025	Meta-dinitrobenzene, 2,4-dinitrotoluene.
K026	Paraldehyde, pyridines, 2-picoline.
K027	Toluene diisocyanate, toluene-2, 4-diamine.
K028	1,1,1-trichloroethane, vinyl chloride.
K029	1,2-dichloroethane, 1,1,1-trichloroethane, vinyl chloride, vinylidene chloride, chloroform.
K030	Hexachlorobenzene, hexachlorobutadiene, hexachloroethane, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, ethylene dichloride.
K031	Arsenic.
K032	Hexachlorocyclopentadiene.
K033	Hexachlorocyclopentadiene.
K034	Hexachlorocyclopentadiene.

AMENDED APPENDIX

EPA hazardous waste No. number	Hazardous constituents for which listed
K035	Creosote, chrysene, naphthalene, fluoranthene benzo(b) fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd) pyrene, benzo(a)anthracene, dibenzo(a)anthracene, acenaphthalene.
K036	Toluene, phosphorodithioic and phosphorothioic acid esters.
K037	Toluene, phosphorodithioic and phosphorothioic acid esters.
K038	Phorate, formaldehyde, phosphorodithioic and phosphorothioic acid esters.
K039	Phosphorodithioic and phosphorothioic acid esters.
K040	Phorate, formaldehyde, phosphorodithioic and phosphorothioic acid esters.
K041	Toxaphene.
K042	Hexachlorobenzene, ortho-dichlorobenzene.
K043	2,4-dichlorophenol, 2,6-dichlorophenol, 2,4,6-trichlorophenol.
K044	N.A.
K045	N.A.
K046	Lead.
K047	N.A.
K048	Hexavalent chromium, lead.
K049	Hexavalent chromium, lead.
K050	Hexavalent chromium.
K051	Hexavalent chromium, lead.
K052	Lead.
K060	Cyanide, naphthalene, phenolic compounds, arsenic.
K061	Hexavalent chromium, lead, cadmium.
K062	Hexavalent chromium, lead.
K069	Hexavalent chromium, lead, cadmium.
K071	Mercury.
K073	Chloroform, carbon tetrachloride, hexachloroethane, trichloroethane, tetrachloroethylene, dichloroethylene, 1,1,2,2-tetrachloroethane.

AMENDED APPENDIX

EPA hazardous waste No. number	Hazardous constituents for which listed
K083	Aniline, diphenylamine, nitrobenzene, phenylenediamine.
K084	Arsenic.
K085	Benzene, dichlorobenzenes, trichlorobenzenes, tetrachlorobenzenes, pentachlorobenzene, hexachlorobenzene, benzyl chloride.
K086	Lead, hexavalent chromium.
K087	Phenol, naphthalene.
K088	Cyanide (complexes).
K093	Phthalic anhydride, maleic anhydride.
K094	Phthalic anhydride.
K095	1,1,2-trichloroethane, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane.
K096	1,2-dichloroethane, 1,1,1-trichloroethane, 1,1,2-trichloroethane.
K097	Chlordane, heptachlor.
K098	Toxaphene.
K099	2,4-dichlorophenol, 2,4,6-trichlorophenol.
K100	Hexavalent chromium, lead, cadmium.
K101	Arsenic.
K102	Arsenic.
K103	Aniline, nitrobenzene, phenylenediamine.
K104	Aniline, benzene, diphenylamine, nitrobenzene, phenylenediamine.
K105	Benzene, monochlorobenzene, dichlorobenzenes, 2,4,6-trichlorophenol.
K106	Mercury.
K107	1,1-Dimethylhydrazine (UDMH).
K108	1,1-Dimethylhydrazine (UDMH).
K109	1,1-Dimethylhydrazine (UDMH).
K110	1,1-Dimethylhydrazine (UDMH).
K111	2,4-Dinitrotoluene.

AMENDED APPENDIX

EPA hazardous waste No. number	Hazardous constituents for which listed
K112	2,4-Toluenediamine, o-toluidine, p-toluidine, aniline.
K113	2,4-Toluenediamine, o-toluidine, p-toluidine, aniline.
K114	2,4-Toluenediamine, o-toluidine, p-toluidine.
K115	2,4-Toluenediamine.
K116	Carbon tetrachloride, tetrachloroethylene, chloroform, phosgene.
K117	Ethylene dibromide.
K118	Ethylene dibromide.
K123	Ethylene thiourea.
K124	Ethylene thiourea.
K125	Ethylene thiourea.
K126	Ethylene thiourea.
K131	Dimethyl sulfate, methyl bromide.
K132	Methyl bromide.
K136	Ethylene dibromide.
K141	Benzene, benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, indenol(1,2,3-cd)pyrene.
K142	Benzene, benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, indenol(1,2,3-cd)pyrene.
K143	Benzene, benz(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene.
K144	Benzene, benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene.
K145	Benzene, benz(a)anthracene, benzo(a)pyrene, dibenz(a,h)anthracene, naphthalene.
K147	Benzene, benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, indenol(1,2,3-cd)pyrene.
K148	Benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, indenol(1,2,3-cd)pyrene.

AMENDED APPENDIX

EPA hazardous waste No. number	Hazardous constituents for which listed
K149	Benzotrichloride, benzyl chloride, chloroform, chloromethane, chlorobenzene, 1,4-dichlorobenzene, hexachlorobenzene, pentachlorobenzene, 1,2,4,5-tetrachlorobenzene, toluene.
K150	Carbon tetrachloride, chloroform, chloromethane, 1,4-dichlorobenzene, hexachlorobenzene, pentachlorobenzene, 1,2,4,5-tetrachlorobenzene, 1,1,2,2-tetrachloroethane, tetrachloroethylene, 1,2,4-trichlorobenzene.
K151	Benzene, carbon tetrachloride, chloroform, hexachlorobenzene, pentachlorobenzene, toluene, 1,2,4,5-tetrachlorobenzene, tetrachloroethylene.
K156	Benomyl, carbaryl, carbendazim, carbofuran, carbosulfan, formaldehyde, methylene chloride, triethylamine.
K157	Carbon tetrachloride, formaldehyde, methyl chloride, methylene chloride, pyridine, triethylamine.
K158	Benomyl, carbendazim, carbofuran, carbosulfan, chloroform, methylene chloride.
K159	Benzene, butylate eptc, molinate, pebulate, vernaolate.
K161	Antimony, arsenic, metam-sodium, ziram.
K169	Benzene.
K170	Benzo(a)pyrene, dibenz(a,h)anthracene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, 3-methylcholanthrene, 7,12-dimethylbenz(a)anthracene.
K171	Benzene, arsenic.
K172	Benzene, arsenic.
K174	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-HpCDD), 1,2,3,4,6,7,8-heptachlorodibenzofuran (1,2,3,4,6,7,8-HpCDF), 1,2,3,4,7,8,9-heptachlorodibenzofuran (1,2,3,6,7,8,9-HpCDF), HxCDDs (all hexachlorodibenzo-p-dioxins), HxCDFs (all hexachlorodibenzofurans), PeCDDs (all pentachlorodibenzo-p-dioxins), OCDD (1,2,3,4,6,7,8,9-octachlorodibenzo-p-dioxin), OCDF (1,2,3,4,6,7,8,9-octachlorodibenzofuran), PeCDFs (all pentachlorodibenzofurans), TCDDs (all tetrachlorodibenzo-p-dioxins), TCDFs (all tetrachlorodibenzofurans).
K175	Mercury.

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EPA hazardous waste No. <u>number</u>	Hazardous constituents for which listed
K176	Arsenic, lead.
K177	Antimony.
K178	Thallium.
K181	Aniline, o-anisidine, 4-chloroaniline, p-cresidine, 2,4-dimethylaniline, 1,2-phenylenediamine, 1,3-phenylenediamine
N.A.	Waste is hazardous because it <u>the waste</u> fails the test for the characteristic of ignitability, <u>characteristic of</u> corrosivity, or <u>characteristic of</u> reactivity.

[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."]

3745-51-30

Lists of hazardous wastes - general.

(A) A waste is a hazardous waste if ~~it~~the waste is listed as such in rules 3745-51-30 to 3745-51-35 of the Administrative Code, unless ~~it~~the waste has been excluded under 40 ~~CFR~~C.F.R. 260.20 and 40 ~~CFR~~C.F.R. 260.22.

~~[Comment: See paragraph (E) of this rule for wastes generated in Ohio that have been excluded from listing as hazardous waste under rules 3745-51-30 to 3745-51-35 of the Administrative Code.]~~

(B) The administrator ~~will~~shall indicate ~~his~~the basis for listing the classes or types of wastes listed by employing one or more of the following hazard codes:

Ignitable waste	(I)
Corrosive waste	(C)
Reactive waste	(R)
Toxicity characteristic waste	(E)
Acute hazardous waste	(H)
Toxic waste	(T)

The appendix to this rule identifies the constituents which caused the administrator to list the waste as a toxicity characteristic waste (E) or toxic waste (T) as shown in rules 3745-51-31 and 3745-51-32 of the Administrative Code.

(C) Each hazardous waste listed in rules 3745-51-30 to 3745-51-35 of the Administrative Code is assigned an EPA hazardous waste number which precedes the name of the waste. This number ~~must~~shall be used in complying with the requirement to notify Ohio EPA or U.S. EPA of regulated waste activity and certain recordkeeping and reporting requirements under Chapters 3745-52, 3745-53, 3745-54 to 3745-57, 3745-65 to 3745-69, 3745-205, 3745-256, 3745-270, and rules 3745-50-40 to 3745-50-235 of the Administrative Code.

(D) The following hazardous wastes listed in rule 3745-51-31 of the Administrative Code are subject to the exclusion limits for acutely hazardous wastes established in rule ~~3745-51-05~~3745-52-13 of the Administrative Code: EPA hazardous waste numbers F020, F021, F022, F023, F026, and F027.

[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."]

Effective: 10/5/2020
Five Year Review (FYR) Dates: 7/13/2020 and 10/05/2025

CERTIFIED ELECTRONICALLY

Certification

09/21/2020

Date

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12/30/1989, 02/11/1992, 04/15/1993, 09/02/1997,
12/07/2000, 12/07/2004, 02/16/2009, 03/17/2012

Appendix to rule 3745-51-30 of the Administrative Code

Basis for Listing Hazardous Waste

EPA hazardous waste No. <u>number</u>	Hazardous constituents for which listed
F001	Tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, chlorinated fluorocarbons.
F002	Tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, ortho-dichlorobenzene, trichlorofluoromethane.
F003	N.A.
F004	Cresols and cresylic acid, nitrobenzene.
F005	Toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, 2-ethoxyethanol, benzene, 2-nitropropane.
F006	Cadmium, hexavalent chromium, nickel, cyanide (complexed).
F007	Cyanide (salts).
F008	Cyanide (salts).
F009	Cyanide (salts).
F010	Cyanide (salts).
F011	Cyanide (salts).
F012	Cyanide (complexed).
F019	Hexavalent chromium, cyanide (complexed).
F020	Tetra- and pentachlorodibenzo-p-dioxins; tetra and pentachlorodi-benzofurans; tri- and tetrachlorophenols and their chlorophenoxy derivative acids, esters, ethers, amine and other salts.
F021	Penta- and hexachlorodibenzo-p-dioxins; penta- and hexachlorodibenzofurans; pentachlorophenol and its derivatives.
F022	Tetra-, penta-, and hexachlorodibenzo-p-dioxins; tetra-, penta-, and hexachlorodibenzofurans.
F023	Tetra-, and pentachlorodibenzo-p-dioxins; tetra- and pentachlorodibenzofurans; tri- and tetrachlorophenols and their chlorophenoxy derivative acids, esters, ethers, amine and other salts.

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EPA hazardous waste No. number	Hazardous constituents for which listed
F024	Chloromethane, dichloromethane, trichloromethane, carbon tetrachloride, chloroethylene, 1,1-dichloroethane, 1,2-dichloroethane, trans-1,2-dichloroethylene, 1,1-dichloroethylene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethylene, 1,1,1,2-tetra-chloroethane, 1,1,2,2-tetrachloroethane, tetrachloroethylene, pentachloroethane, hexachloroethane, allyl chloride (3-chloropropene), dichloropropane, dichloropropene, 2-chloro-1,3-butadiene, hexachloro-1,3-butadiene, hexachlorocyclopentadiene, hexachlorocyclohexane, benzene, chlorobenzene, dichlorobenzenes, 1,2,4-trichlorobenzene, tetrachlorobenzene, pentachlorobenzene, hexachlorobenzene, toluene, naphthalene.
F025	Chloromethane; dichloromethane; trichloromethane; carbon tetrachloride; chloroethylene; 1,1-dichloroethane; 1,2-dichloroethane; trans-1,2-dichloroethylene; 1,1-dichloroethylene; 1,1,1-trichloroethane; 1,1,2-trichloroethane; trichloroethylene; 1,1,1,2-tetrachloroethane; 1,1,2,2-tetrachloroethane; tetrachloroethylene; pentachloroethane; hexachloroethane; allyl chloride (3-chloropropene); dichloropropane; dichloropropene; 2-chloro-1,3-butadiene; hexachloro-1,3-butadiene; hexachlorocyclopentadiene; benzene; chlorobenzene; dichlorobenzene; 1,2,4-trichlorobenzene; tetrachlorobenzene; pentachlorobenzene; hexachlorobenzene; toluene; naphthalene.
F026	Tetra-, penta-, and hexachlorodibenzo-p-dioxins; tetra-, penta-, and hexachlorodibenzofurans.
F027	Tetra-, penta-, and hexachlorodibenzo-p-dioxins; tetra-, penta-, and hexachlorodibenzofurans; tri-, tetra-, and pentachlorophenols and their chlorophenoxy derivative acids, esters, ethers, amine and other salts.
F028	Tetra-, penta-, and hexachlorodibenzo-p-dioxins; tetra-, penta-, and hexachlorodibenzofurans; tri-, tetra-, and pentachlorophenols and their chlorophenoxy derivative acids, esters, ethers, amine and other salts.
F032	Benz(a)anthracene, benzo(a)pyrene, dibenz(a,h)-anthracene, indeno(1,2,3-cd)pyrene, pentachlorophenol, arsenic, chromium, tetra-, penta-, hexa-, heptachlorodibenzo-p-dioxins, tetra-, penta-, hexa-, heptachlorodibenzofurans.
F034	Benz(a)anthracene, benzo(k)fluoranthene, benzo(a)pyrene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, naphthalene, arsenic, chromium.

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EPA hazardous waste No. number	Hazardous constituents for which listed
F035	Arsenic, chromium, lead.
F037	Benzene, benzo(a)pyrene, chrysene, lead, chromium.
F038	Benzene, benzo(a)pyrene, chrysene, lead, chromium.
F039	All constituents for which treatment standards are specified for multi-source leachate (wastewaters and nonwastewaters) under the table in rule 3745-270-40 of the Administrative Code.
K001	Pentachlorophenol, phenol, 2-chlorophenol, p-chloro-m-cresol, 2,4-dimethylphenyl, 2,4-dinitrophenol, trichlorophenols, tetrachlorophenols, 2,4-dinitrophenol, creosote, chrysene, naphthalene, fluoranthene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benz(a)anthracene, dibenz(a)anthracene, acenaphthalene.
K002	Hexavalent chromium, lead
K003	Hexavalent chromium, lead.
K004	Hexavalent chromium.
K005	Hexavalent chromium, lead.
K006	Hexavalent chromium.
K007	Cyanide (complexed), hexavalent chromium.
K008	Hexavalent chromium.
K009	Chloroform, formaldehyde, methylene chloride, methyl chloride, paraldehyde, formic acid.
K010	Chloroform, formaldehyde, methylene chloride, methyl chloride, paraldehyde, formic acid, chloroacetaldehyde.
K011	Acrylonitrile, acetonitrile, hydrocyanic acid.
K013	Hydrocyanic acid, acrylonitrile, acetonitrile.
K014	Acetonitrile, acrylamide.
K015	Benzyl chloride, chlorobenzene, toluene, benzotrichloride.
K016	Hexachlorobenzene, hexachlorobutadiene, carbon tetrachloride, hexachloroethane, perchloroethylene.

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EPA hazardous waste No. <u>number</u>	Hazardous constituents for which listed
K017	Epichlorohydrin, chloroethers [bis(chloromethyl) ether and bis(2-chloroethyl) ethers], trichloropropane, dichloropropanols.
K018	1,2-dichloroethane, trichloroethylene, hexachlorobutadiene, hexachlorobenzene.
K019	Ethylene dichloride, 1,1,1-trichloroethane, 1,1,2-trichloroethane, tetrachloroethanes (1,1,2,2-tetrachloroethane and 1,1,1,2-tetrachloroethane), trichloroethylene, tetrachloroethylene, carbon tetrachloride, chloroform, vinyl chloride, vinylidene chloride.
K020	Ethylene dichloride, 1,1,1-trichloroethane, 1,1,2-trichloroethane, tetrachloroethanes (1,1,2,2-tetrachloroethane and 1,1,1,2-tetrachloroethane), trichloroethylene, tetrachloroethylene, carbon tetrachloride, chloroform, vinyl chloride, vinylidene chloride.
K021	Antimony, carbon tetrachloride, chloroform.
K022	Phenol, tars (polycyclic aromatic hydrocarbons).
K023	Phthalic anhydride, maleic anhydride.
K024	Phthalic anhydride, 1,4-naphthoquinone.
K025	Meta-dinitrobenzene, 2,4-dinitrotoluene.
K026	Paraldehyde, pyridines, 2-picoline.
K027	Toluene diisocyanate, toluene-2, 4-diamine.
K028	1,1,1-trichloroethane, vinyl chloride.
K029	1,2-dichloroethane, 1,1,1-trichloroethane, vinyl chloride, vinylidene chloride, chloroform.
K030	Hexachlorobenzene, hexachlorobutadiene, hexachloroethane, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, ethylene dichloride.
K031	Arsenic.
K032	Hexachlorocyclopentadiene.
K033	Hexachlorocyclopentadiene.
K034	Hexachlorocyclopentadiene.

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EPA hazardous waste No. number	Hazardous constituents for which listed
K035	Creosote, chrysene, naphthalene, fluoranthene benzo(b) fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd) pyrene, benzo(a)anthracene, dibenzo(a)anthracene, acenaphthalene.
K036	Toluene, phosphorodithioic and phosphorothioic acid esters.
K037	Toluene, phosphorodithioic and phosphorothioic acid esters.
K038	Phorate, formaldehyde, phosphorodithioic and phosphorothioic acid esters.
K039	Phosphorodithioic and phosphorothioic acid esters.
K040	Phorate, formaldehyde, phosphorodithioic and phosphorothioic acid esters.
K041	Toxaphene.
K042	Hexachlorobenzene, ortho-dichlorobenzene.
K043	2,4-dichlorophenol, 2,6-dichlorophenol, 2,4,6-trichlorophenol.
K044	N.A.
K045	N.A.
K046	Lead.
K047	N.A.
K048	Hexavalent chromium, lead.
K049	Hexavalent chromium, lead.
K050	Hexavalent chromium.
K051	Hexavalent chromium, lead.
K052	Lead.
K060	Cyanide, naphthalene, phenolic compounds, arsenic.
K061	Hexavalent chromium, lead, cadmium.
K062	Hexavalent chromium, lead.
K069	Hexavalent chromium, lead, cadmium.
K071	Mercury.
K073	Chloroform, carbon tetrachloride, hexachloroethane, trichloroethane, tetrachloroethylene, dichloroethylene, 1,1,2,2-tetrachloroethane.

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EPA hazardous waste No. number	Hazardous constituents for which listed
K083	Aniline, diphenylamine, nitrobenzene, phenylenediamine.
K084	Arsenic.
K085	Benzene, dichlorobenzenes, trichlorobenzenes, tetrachlorobenzenes, pentachlorobenzene, hexachlorobenzene, benzyl chloride.
K086	Lead, hexavalent chromium.
K087	Phenol, naphthalene.
K088	Cyanide (complexes).
K093	Phthalic anhydride, maleic anhydride.
K094	Phthalic anhydride.
K095	1,1,2-trichloroethane, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane.
K096	1,2-dichloroethane, 1,1,1-trichloroethane, 1,1,2-trichloroethane.
K097	Chlordane, heptachlor.
K098	Toxaphene.
K099	2,4-dichlorophenol, 2,4,6-trichlorophenol.
K100	Hexavalent chromium, lead, cadmium.
K101	Arsenic.
K102	Arsenic.
K103	Aniline, nitrobenzene, phenylenediamine.
K104	Aniline, benzene, diphenylamine, nitrobenzene, phenylenediamine.
K105	Benzene, monochlorobenzene, dichlorobenzenes, 2,4,6-trichlorophenol.
K106	Mercury.
K107	1,1-Dimethylhydrazine (UDMH).
K108	1,1-Dimethylhydrazine (UDMH).
K109	1,1-Dimethylhydrazine (UDMH).
K110	1,1-Dimethylhydrazine (UDMH).
K111	2,4-Dinitrotoluene.

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EPA hazardous waste No. number	Hazardous constituents for which listed
K112	2,4-Toluenediamine, o-toluidine, p-toluidine, aniline.
K113	2,4-Toluenediamine, o-toluidine, p-toluidine, aniline.
K114	2,4-Toluenediamine, o-toluidine, p-toluidine.
K115	2,4-Toluenediamine.
K116	Carbon tetrachloride, tetrachloroethylene, chloroform, phosgene.
K117	Ethylene dibromide.
K118	Ethylene dibromide.
K123	Ethylene thiourea.
K124	Ethylene thiourea.
K125	Ethylene thiourea.
K126	Ethylene thiourea.
K131	Dimethyl sulfate, methyl bromide.
K132	Methyl bromide.
K136	Ethylene dibromide.
K141	Benzene, benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, indenol(1,2,3-cd)pyrene.
K142	Benzene, benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, indenol(1,2,3-cd)pyrene.
K143	Benzene, benz(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene.
K144	Benzene, benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene.
K145	Benzene, benz(a)anthracene, benzo(a)pyrene, dibenz(a,h)anthracene, naphthalene.
K147	Benzene, benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, indenol(1,2,3-cd)pyrene.
K148	Benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, indenol(1,2,3-cd)pyrene.

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EPA hazardous waste No. number	Hazardous constituents for which listed
K149	Benzotrichloride, benzyl chloride, chloroform, chloromethane, chlorobenzene, 1,4-dichlorobenzene, hexachlorobenzene, pentachlorobenzene, 1,2,4,5-tetrachlorobenzene, toluene.
K150	Carbon tetrachloride, chloroform, chloromethane, 1,4-dichlorobenzene, hexachlorobenzene, pentachlorobenzene, 1,2,4,5-tetrachlorobenzene, 1,1,2,2-tetrachloroethane, tetrachloroethylene, 1,2,4-trichlorobenzene.
K151	Benzene, carbon tetrachloride, chloroform, hexachlorobenzene, pentachlorobenzene, toluene, 1,2,4,5-tetrachlorobenzene, tetrachloroethylene.
K156	Benomyl, carbaryl, carbendazim, carbofuran, carbosulfan, formaldehyde, methylene chloride, triethylamine.
K157	Carbon tetrachloride, formaldehyde, methyl chloride, methylene chloride, pyridine, triethylamine.
K158	Benomyl, carbendazim, carbofuran, carbosulfan, chloroform, methylene chloride.
K159	Benzene, butylate eptc, molinate, pebulate, vernaolate.
K161	Antimony, arsenic, metam-sodium, ziram.
K169	Benzene.
K170	Benzo(a)pyrene, dibenz(a,h)anthracene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, 3-methylcholanthrene, 7,12-dimethylbenz(a)anthracene.
K171	Benzene, arsenic.
K172	Benzene, arsenic.
K174	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-HpCDD), 1,2,3,4,6,7,8-heptachlorodibenzofuran (1,2,3,4,6,7,8-HpCDF), 1,2,3,4,7,8,9-heptachlorodibenzofuran (1,2,3,6,7,8,9-HpCDF), HxCDDs (all hexachlorodibenzo-p-dioxins), HxCDFs (all hexachlorodibenzofurans), PeCDDs (all pentachlorodibenzo-p-dioxins), OCDD (1,2,3,4,6,7,8,9-octachlorodibenzo-p-dioxin), OCDF (1,2,3,4,6,7,8,9-octachlorodibenzofuran), PeCDFs (all pentachlorodibenzofurans), TCDDs (all tetrachlorodibenzo-p-dioxins), TCDFs (all tetrachlorodibenzofurans).
K175	Mercury.

AMENDED APPENDIX

EPA hazardous waste No. <u>number</u>	Hazardous constituents for which listed
K176	Arsenic, lead.
K177	Antimony.
K178	Thallium.
K181	Aniline, o-anisidine, 4-chloroaniline, p-cresidine, 2,4-dimethylaniline, 1,2-phenylenediamine, 1,3-phenylenediamine
N.A.	Waste is hazardous because it <u>the waste</u> fails the test for the characteristic of ignitability, <u>characteristic of</u> corrosivity, or <u>characteristic of</u> reactivity.

[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."]

3745-51-31

Hazardous waste from non-specific sources.

(A) The following table lists hazardous wastes from non-specific sources, along with industry and EPA hazardous waste numbers and hazard codes for these hazardous wastes:

Industry and EPA hazardous waste number	Hazardous waste	Hazard code
Generic:		
F001	The following spent halogenated solvents used in degreasing: tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvent mixtures or blends used in degreasing containing, before use, a total of ten per cent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(T)
F002	The following spent halogenated solvents: tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2- trifluoroethane, orthodichlorobenzene, trichlorofluoromethane, and 1,1,2-trichloroethane; all spent solvent mixtures or blends containing, before use, a total of ten per cent or more (by volume) of one or more of the above halogenated solvents or those listed in F001, F004, or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(T)
F003	The following spent non-halogenated solvents: xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures or blends containing, before use, only the above spent non-halogenated solvents; and all spent solvent mixtures or blends containing, before use, one or more of the above non-halogenated solvents, and, a total of ten per cent or more (by volume) of one or more of those solvents listed in F001, F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(I)*

F004	The following spent non-halogenated solvents: cresols and cresylic acid, and nitrobenzene; all spent solvent mixtures or blends containing, before use, a total of ten per cent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(T)
F005	The following spent non-halogenated solvents: toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane; all spent solvent mixtures or blends containing, before use, a total of ten per cent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, or F004; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(I,T)
F006	Wastewater treatment sludges from electroplating operations except from the following processes: (1) sulfuric acid anodizing of aluminum; (2) tin plating on carbon steel; (3) zinc plating (segregated basis) on carbon steel; (4) aluminum or zinc aluminum plating on carbon steel; (5) cleaning or stripping associated with tin, zinc and aluminum plating on carbon steel; and (6) chemical etching and milling of aluminum.	(T)
F007	Spent cyanide plating bath solutions from electroplating operations.	(R,T)
F008	Plating sludges <u>bath residues</u> from the bottom of plating baths from electroplating operations where cyanides are used in the process.	(R,T)
F009	Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process.	(R,T)
F010	Quenching bath residues from oil baths from metal heat treating operations where cyanides are used in the process.	(R,T)
F011	Spent cyanide solutions from salt bath pot cleaning from metal heat treating operations.	(R,T)
F012	Quenching wastewater treatment sludges from metal heat treating operations where cyanides are used in the process.	(T)

F019	<p>Wastewater treatment sludges from the chemical conversion coating of aluminum except from zirconium phosphating in aluminum can washing when such phosphating is an exclusive conversion coating process. Wastewater treatment sludges from the manufacturing of motor vehicles using a zinc phosphating process will not be subject to this listing at the point of generation if the wastes are not placed outside on the land prior to shipment to a landfill for disposal and are: - disposed in a RCRA subtitle D municipal waste or industrial waste landfill unit that is equipped with a single clay liner, or that meets the requirements of rule 3745-27-08 or 3745-29-08 of the Administrative Code, and -is permitted, licensed, or otherwise authorized by Ohio, or -is permitted, licensed, or otherwise authorized by another state that has this exemption, or -disposed in a hazardous waste landfill unit subject to, or that otherwise meets, the requirements of rule 3745-57-03 or 3745-68-05 of the Administrative Code, or -disposed in a municipal waste landfill unit subject to, or that otherwise meets, the requirements of 40 CFR 258.40. For the purposes of this listing, paragraph (B)(4)(a) of this rule defines "motor vehicle manufacturing," and paragraph (B)(4)(b) of this rule describes the recordkeeping requirements for motor vehicle manufacturing facilities.</p>	(T)
F020	<p>Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tri- or tetrachlorophenol, or of intermediates used to produce <u>their</u> pesticide derivatives. (This listing does not include wastes from the production of hexachlorophene from highly purified 2,4,5-trichlorophenol.)</p>	(H)
F021	<p>Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of pentachlorophenol, or of intermediates used to produce its derivatives.</p>	(H)
F022	<p>Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the manufacturing use (as a reactant, chemical intermediate, or component in a formulating</p>	(H)

	process) of tetra-, penta-, or hexachlorobenzenes under alkaline conditions.	
F023	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production of materials on equipment previously used for the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tri- and tetrachlorophenols. (This listing does not include wastes from equipment used only for the production or use of hexachlorophene from highly purified 2,4,5-trichlorophenol.)	(H)
F024	Process wastes, including but not limited to, distillation residues, heavy ends, tars, and reactor cleanout wastes from the production of certain chlorinated aliphatic hydrocarbons by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution. (This listing does not include wastewaters, wastewater treatment sludges, spent catalysts, and wastes listed in this rule or in rule 3745-51-32 of the Administrative Code.)	(T)
F025	Condensed light ends, spent filters and filter aids, and spent desiccant <u>desiccant</u> wastes from the production of certain chlorinated aliphatic hydrocarbons, by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution.	(T)
F026	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production of materials on equipment previously used for the manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tetra-, penta-, or hexachlorobenzene under alkaline conditions.	(H)
F027	Discarded unused formulations containing tri-, tetra-, or pentachlorophenol or discarded unused formulations containing compounds derived from these chlorophenols. (This listing does not include formulation containing Hexachlorophene	(H)

	synthesized from pre-purified 2,4,5-trichlorophenol as the sole component.)	
F028	Residues resulting from the incineration or thermal treatment of soil contaminated with EPA hazardous waste numbers F020, F021, F022, F023, F026, and F027.	(T)
F032	Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that currently use or have previously used chlorophenolic formulations [except potentially cross-contaminated wastes that have had the F032 EPA hazardous waste number deleted in accordance with rule 3745-51-35 of the Administrative Code or potentially crosscontaminated wastes that are otherwise currently regulated as hazardous wastes (i.e., F034 or F035), and where the generator does not resume or initiate use of chlorophenolic formulations]. This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote or pentachlorophenol.	(T)
F034	Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use creosote formulations. This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote or pentachlorophenol.	(T)
F035	Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use inorganic preservatives containing arsenic or chromium. This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote or pentachlorophenol.	(T)
F037	Petroleum refinery primary oil or water or solids separation sludge. Any sludge generated from the gravitational separation of oil or water or solids during the storage or treatment of process wastewaters and oily cooling wastewaters from	(T)

	<p>petroleum refineries. Such sludges include, but are not limited to, those generated in oil or water or solids separators, tanks and impoundments, ditches and other conveyances, sumps, and stormwater units receiving dry weather flow. Sludges generated in stormwater units that do not receive dry weather flow, sludges generated from non-contact once-through cooling waters segregated for treatment from other process or oily cooling waters, sludges generated in "aggressive biological treatment units" as defined in paragraph (B)(2) of this rule (including sludges generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units), and K051 wastes are not included in this listing. This listing does include residuals generated from processing or recycling oil-bearing hazardous secondary materials excluded under paragraph (A)(12)(a) of rule 3745-51-04 of the Administrative Code, if those residuals are to be disposed of.</p>	
F038	<p>Petroleum refinery secondary (emulsified) oil or water or solids separation sludge. Any sludge or float generated from the physical or chemical separation of oil or water or solids in process wastewaters and oily cooling wastewaters from petroleum refineries. Such wastes include, but are not limited to, all sludges and floats generated in induced air flotation (IAF) units, tanks and impoundments, and all sludges generated in dissolved air flotation (DAF) units. Sludges generated in stormwater units that do not receive dry weather flow, sludges generated from non-contact once-through cooling waters segregated for treatment from other process or oily cooling waters, sludges and floats generated in aggressive biological treatment units as defined in paragraph (B)(2) of this rule (including sludges and floats generated in one or more additional units after wastewaters have been treated in "aggressive biological treatment units"), and F037, K048, and K051 wastes are not included in this listing.</p>	(T)
F039	<p>Leachate (liquids that have percolated through land disposed wastes) resulting from the disposal of more than one restricted waste classified as hazardous under rules 3745-51-30 to 3745-51-35 of the Administrative Code. (Leachate resulting from the disposal of one or more than one of the following EPA hazardous wastes and no other hazardous wastes retains its</p>	(T)

EPA hazardous waste numbers: F020, F021, F022, F026, F027, or F028.)
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* (I,T) should be used to specify mixtures that are ignitable and contain toxic constituents.

(B) Listing-specific definitions.

(1) For the purposes of the F037 and F038 listings, "oil/water/solids" (the term used by U.S. EPA) is defined as oil or water or solids, and "oil or water or solids" is the term used in the hazardous waste rules.

(2) ~~For the purposes of the F037 and F038 listings:~~

~~(a) An "aggressive biological treatment unit" is defined as a unit which employs one of the following four treatment methods:~~

~~(i) Activated sludge;~~

~~(ii) Trickling filter;~~

~~(iii) Rotating biological contactor for the continuous accelerated biological oxidation of wastewaters; or~~

~~(iv) High-rate aeration. High-rate aeration is a system of surface impoundments or tanks, in which intense mechanical aeration is used to completely mix the wastes, enhance biological activity, and the unit employs a minimum of six horse power per million gallons of treatment volume, and either:~~

~~(a) The hydraulic retention time of the unit is no longer than five days; or~~

~~(b) The hydraulic retention time of the unit is no longer than thirty days, and the unit does not generate a sludge that is a hazardous waste by the toxicity characteristic leaching procedure.~~

(a) For the purposes of the F037 and F038 listing, "aggressive biological treatment units" are defined as units which employ one of the following four treatment methods: activated sludge, trickling filter, rotating biological contactor for the continuous accelerated biological oxidation of wastewaters, or high rate aeration. High rate aeration is a system of surface impoundments or tanks in which intense mechanical aeration is used to completely mix the wastes, enhance biological activity; and

(i) The units employ a minimum of six horse power per million gallons of treatment volume; and either

(ii) The hydraulic retention time of the unit is no longer than five days; or

(iii) The hydraulic retention time of the unit is no longer than thirty days and the unit does not generate a sludge that is a hazardous waste by the toxicity characteristic.

(b) Generators and treatment, storage, and disposal facilities have the burden of proving that sludges from those facilities are exempt from listings as F037 and F038 wastes under this definition. Generators and treatment, storage, and disposal facilities shall maintain, in the operating or other on-site records, documents and the data sufficient to prove that:

(i) The unit is an "aggressive biological treatment unit" as defined in this rule; and

(ii) The sludges sought to be exempted from the definitions of F037 or F038 were actually generated in the aggressive biological treatment unit.

[Comment: For purposes of ~~paragraph~~ paragraph (B)(2)(b) to (B)(2)(b) ~~(ii)~~ of this rule and the F037 and F038 listings in this rule, "exempt" means not included under the definition of F037 or F038 with respect to determining the status of this material as a hazardous waste.]

(3) ~~For the purposes of:~~

(a) ~~The~~ For the purposes of the F037 listing, sludges are considered to be generated at the moment of deposition in the unit, where "deposition" is defined as at least a temporary cessation of lateral particle movement.

(b) ~~The~~ For the purposes of the F038 listing:

(i) Sludges are considered to be generated at the moment of deposition in the unit, where "deposition" is defined as at least a temporary cessation of lateral particle movement; and

(ii) Floats are considered to be generated at the moment of formation in the top of the unit.

- (4) For the purposes of the F019 listing, the following apply to wastewater treatment sludges from the manufacturing of motor vehicles using a zinc phosphating process:
- (a) "Motor vehicle manufacturing" is defined to include the manufacture of automobiles and light trucks or utility vehicles (including light duty vans, pickup trucks, minivans, and sport utility vehicles). Facilities shall be engaged in manufacturing complete vehicles (body and chassis or unibody) or chassis only.
 - (b) Generators shall maintain in on-site records documentation and information sufficient to prove that the wastewater treatment sludges to be exempted from the F019 listing meet the conditions of the listing. These records shall include the volume of waste generated and disposed of ~~off-site~~off-site, documentation showing when the waste volumes were generated and sent ~~off-site~~off-site, the name and address of the receiving facility, and documentation confirming receipt of the waste by the receiving facility. Generators shall maintain these documents ~~on-site~~on-site for no less than three years. The retention period for the documentation is automatically extended during the course of any enforcement action or as requested by the director.

[Comment: For dates of non-regulatory government publications, publications of recognised 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."]

Effective: 10/23/2022
Five Year Review (FYR) Dates: 7/20/2022 and 07/20/2027

CERTIFIED ELECTRONICALLY

Certification

10/11/2022

Date

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3745-51-32

Hazardous waste from specific sources.

(A) The following wastes are listed hazardous wastes from specific sources unless the wastes are excluded under 40 CFR 260.20 and 40 CFR 260.22 and 40 CFR Part 261 appendix IX.

Industry and EPA Hazardous Waste No Number.	Hazardous Waste	<u>Hazard Code</u>
Wood preservation:		
K001	Bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote or pentachlorophenol	(T)
Inorganic pigments:		
K002	Wastewater treatment sludge from the production of chrome yellow and orange pigments	(T)
K003	Wastewater treatment sludge from the production of molybdate orange pigments	(T)
K004	Wastewater treatment sludge from the production of zinc yellow pigments	(T)
K005	Wastewater treatment sludge from the production of chrome green pigments	(T)
K006	Wastewater treatment sludge from the production of chrome oxide green pigments (anhydrous and hydrated)	(T)
K007	Wastewater treatment sludge from the production of iron blue pigments	(T)
K008	Oven residue from the production of chrome oxide green pigments	(T)
Organic chemicals:		
K009	Distillation bottoms from the production of acetaldehyde from ethylene	(T)

K010	Distillation side cuts from the production of acetaldehyde from ethylene	(T)
K011	Bottom stream from the wastewater stripper in the production of acrylonitrile	(R,T)
K013	Bottom stream from the acetonitrile column in the production of acrylonitrile	(R,T)
K014	Bottoms from the acetonitrile purification column in the production of acrylonitrile	(T)
K015	Still bottoms from the distillation of benzyl chloride	(T)
K016	Heavy ends or distillation residues from the production of carbon tetrachloride	(T)
K017	Heavy ends (still bottoms) from the purification column in the production of epichlorohydrin	(T)
K018	Heavy ends from the fractionation column in ethyl chloride production	(T)
K019	Heavy ends from the distillation of ethylene dichloride in ethylene dichloride production	(T)
K020	Heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production	(T)
K021	Aqueous spent antimony catalyst waste from fluoromethanes production	(T)
K022	Distillation bottom tars from the production of phenol or acetone from cumene	(T)
K023	Distillation light ends from the production of phthalic anhydride from naphthalene	(T)
K024	Distillation bottoms from the production of phthalic anhydride from naphthalene	(T)
K025	Distillation bottoms from the production of nitrobenzene by the nitration of benzene	(T)

K026	Stripping still tails from the production of methy ethyl pyridines	(T)
K027	Centrifuge and distillation residues from toluene diisocyanate production	(R,T)
K028	Spent catalyst from the hydrochlorinator reactor in the production of 1,1,1-trichloroethane	(T)
K029	Spent catalyst from the hydrochlorinator reactor in the production of 1,1,1-trichloroethane	(T)
K030	Column bottoms or heavy ends from the combined production of trichloroethylene and perchloroethylene	(T)
K083	Distillation bottoms from aniline production	(T)
K085	Distillation or fractionation column bottoms from the production of chlorobenzenes	(T)
K093	Distillation light ends from the production of phthalic anhydride from orthoxylene	(T)
K094	Distillation bottoms from the production of phthalic anhydride from orthoxylene	(T)
K095	Distillation bottoms from the production of 1,1,1-trichloroethane	(T)
K096	Heavy ends from the heavy ends column from the production of 1,1,1-trichloroethane	(T)
K103	Process residues from aniline extraction from the production of aniline	(T)
K104	Combined wastewater streams generated from nitrobenzene or aniline production	(T)
K105	Separated aqueous stream from the reactor product washing step in the production of chlorobenzenes	(T)
K107	Column bottoms from product separation from the production of 1,1-dimethylhydrazine (UDMH from carboxylic acid hydrazides	(C,T)

K108	Condensed column overheads from product separation and condensed reactor vent gases from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides	(I,T)
K109	Spent filter cartridges from product purification from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides	(T)
K110	Condensed column overheads from intermediate separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides	(T)
K111	Product washwaters from the production of dinitrotoluene via nitration of toluene	(C,T)
K112	Reaction by-product water from the drying column in the production of toluenediamine via hydrogenation of dinitrotoluene	(T)
K113	Condensed liquid light ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene	(T)
K114	Vicinals from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene	(T)
K115	Heavy ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene	(T)
K116	Organic condensate from the solvent recovery column in the production of toluene diisocyanate via phosgenation of toluenediamine	(T)
K117	Wastewater from the reactor vent gas scrubber in the production of ethylene dibromide via bromination of ethene	(T)
K118	Spent adsorbent solids from purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene	(T)
K136	Still bottoms from the purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene	(T)

K149	Distillation bottoms from the production of alpha- (or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups. (This waste does not include still bottoms from the distillation of benzyl chloride.)	(T)
K150	Organic residuals, excluding spent carbon absorbent, from the spent chlorine gas and hydrochloric acid recovery process processes associated with the production of alpha- (or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups	(T)
K151	Wastewater treatment sludges, excluding neutralization and biological sludges, generated during the treatment of wastewaters from the production of alpha- (or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups	(T)
K156	Organic waste (including heavy ends, still bottoms, light ends, spent solvents, filtrates, and decantates) from the production of carbamates and carbamoyl oximes. (This listing does not apply to wastes generated from the manufacture of 3-iodo-2-propynyl n-butylcarbamate.)	(T)
K157	Wastewaters (including scrubber waters, condenser waters, washwaters, and separation waters) from the production of carbamates and carbamoyl oximes. (This listing does not apply to wastes generated from the manufacture of 3-iodo-2-propynyl n-butylcarbamate.)	(T)
K158	Bag house dusts and filter or separation solids from the production of carbamates and carbamoyl oximes. (This listing does not apply to wastes generated from the manufacture of 3-iodo-2-propynyl n-butylcarbamate.)	(T)
K159	Organics from the treatment of thiocarbamate wastes	(T)
K161	Purification solids (including filtration, evaporation, and centrifugation solids), bag house dust and floor sweepings from the production of dithiocarbamate acids and dithiocarbamate acids salts. (This listing does not include K125 or K126.)	(R,T)

K174	Wastewater treatment sludges from the production of ethylene dichloride or vinyl chloride monomer (including sludges that result from commingled ethylene dichloride or vinyl chloride monomer wastewater and other wastewater), unless the sludges meet the following conditions: (a) The sludges are disposed of in a hazardous waste or non-hazardous waste landfill licensed or permitted by the state or federal government. (b) The sludges are not otherwise placed on the land prior to final disposal. (c) The generator maintains documentation demonstrating that the waste was either disposed of in an on-site landfill or consigned to a transporter or disposal facility that provided a written commitment to dispose of the waste in an off-site landfill. Respondents in any action brought to enforce the regulations adopted under Chapter 3734. of the Revised Code or RCRA subtitle C, upon a showing by the government that the respondent managed wastewater treatment sludges from the production of vinyl chloride monomer or ethylene dichloride, shall demonstrate that the respondents meet the terms of the exclusion provided in this description. In doing so, the respondents shall provide appropriate documentation (e.g., contracts between the generator and the landfill owner or operator, invoices documenting delivery of waste to landfill, etc.) that the terms of the exclusion were met.	(T)
K175	Wastewater treatment sludges from the production of vinyl chloride monomer using mercuric chloride catalyst in an acetylene-based process	(T)
K181	Nonwastewaters from the production of dyes or pigments (including nonwastewaters commingled at the point of generation with nonwastewaters from other processes) that, at the point of generation, contain mass loadings of any of the constituents identified in paragraph (C) of this rule that are equal to or greater than the corresponding paragraph (C) levels, as determined on a calendar year basis. These wastes will not be hazardous if the nonwastewaters are: (a) disposed in a RCRA subtitle D landfill unit subject to the design criteria in 40 CFR 258.40, (b) disposed in a RCRA subtitle C landfill unit subject to either rule 3745-57-03 or rule 3745-68-05 of the Administrative Code, (c) disposed in other RCRA subtitle D landfill units that meet the design criteria in 40 CFR 258.40, rule 3745-57-03 of the Administrative	(T)

	Code, or rule 3745-68-05 of the Administrative Code, or (d) treated in a combustion unit that is permitted under RCRA subtitle C, or an onsite combustion unit that is permitted under the Clean Air Act. For the purposes of this listing, "dyes or pigments production" is defined in paragraph (B)(1) of this rule. Paragraphs Paragraph (D) to (D)(5) of this rule describe the process for demonstrating that a facility's nonwastewaters are not K181. (This listing does not apply to wastes that are otherwise identified as hazardous under rules 3745-51-21 to 3745-51-24 of the Administrative Code and rules 3745-51-31 to 3745-51-33 of the Administrative Code at the point of generation. Also, the listing does not apply to wastes generated before any annual mass loading limit is met.)	
Inorganic chemicals:		
K071	Brine purification muds from the mercury cell process in chlorine production, where separately prepurified brine is not used	(T)
K073	Chlorinated hydrocarbon waste from the purification step of the diaphragm cell process using graphite anodes in chlorine production	(T)
K106	Wastewater treatment sludge from the mercury cell process in chlorine production	(T)
K176	Baghouse filters from the production of antimony oxide, including filters from the production of intermediates (e.g., antimony metal or crude antimony oxide)	(E)
K177	Slag from the production of antimony oxide that is accumulated speculatively or disposed, including slag from the production of intermediates (e.g., antimony metal or crude antimony oxide)	(T)
K178	Residues from manufacturing and manufacturing-site storage of ferric chloride from acids formed during the production of titanium dioxide using the chloride-ilmenite process	(T)
Pesticides:		
K031	By-product salts generated in the production of monosodium acid methanearsonate (MSMA) and cacodylic acid	(T)

K032	Wastewater treatment sludge from the production of chlordane	(T)
K033	Wastewater and scrub water from the chlorination of cyclopentadiene in the production of chlordane	(T)
K034	Filter solids from the filtration of hexachlorocyclopentadiene in the production of chlordane	(T)
K035	Wastewater treatment sludges generated in the production of creosote	(T)
K036	Still bottoms from toluene reclamation distillation in the production of disulfoton	(T)
K037	Wastewater treatment sludges from the production of disulfoton	(T)
K038	Wastewater from the washing and stripping of phorate production	(T)
K039	Filter cake from the filtration of diethylphosphorodithioic acid in the production of phorate	(T)
K040	Wastewater treatment sludge from the production of phorate	(T)
K041	Wastewater treatment sludge from the production of toxaphene	(T)
K042	Heavy ends or distillation residues from the distillation of tetrachlorobenzene in the production of 2,4,5-T	(T)
K043	2,6-Dichlorophenol waste from the production of 2,4-D	(T)
K097	Vacuum stripper discharge from the chlordane chlorinator in the production of chlordane	(T)
K098	Untreated process wastewater from the production of toxaphene	(T)
K099	Untreated wastewater from the production of 2,4-D	(T)
K123	Process wastewater (including supernates, filtrates, and washwaters) from the production of ethylenebisdithiocarbamic acid and its salt	(T)

K124	Reactor vent scrubber water from the production of ethylenebisdithiocarbamic acid and its salts	(C,T)
K125	Filtration, evaporation, and centrifugation solids from the production of ethylenebisdithiocarbamic acid and its salts	(T)
K126	Baghouse dust and floor sweepings in milling and packaging operations from the production or formulation of ethylenebisdithiocarbamic acid and its salts	(T)
K131	Wastewater from the reactor and spent sulfuric acid from the acid dryer from the production of methyl bromide	(C,T)
K132	Spent absorbent and wastewater separator solids from the production of methyl bromide	(T)
Explosives:		
K044	Wastewater treatment sludges from the manufacturing and processing of explosives	(R)
K045	Spent carbon from the treatment of wastewater containing explosives	(R)
K046	Wastewater treatment sludges from the manufacturing, formulation, and loading of lead-based initiating compounds	(T)
K047	Pink or red water from trinitrotoluene (TNT) operations	(R)
Petroleum refining:		
K048	Dissolved air flotation (DAF) float from the petroleum refining industry	(T)
K049	Slop oil emulsion solids from the petroleum refining industry	(T)
K050	Heat exchanger bundle cleaning sludge from the petroleum refining industry	(T)
K051	API separator sludge from the petroleum refining industry	(T)
K052	Tank bottoms (leaded) from the petroleum refining industry	(T)
K169	Crude oil storage tank sediment from petroleum refining operations	(T)

K170	Clarified slurry oil tank sediment or in-line filter or separation solids from petroleum refining operations	(T)
K171	Spent hydrotreating catalyst from petroleum refining operations, including guard beds used to desulfurize feeds to other catalytic reactors (This listing does not include inert support media.)	(I,T)
K172	Spent hydrorefining catalyst from petroleum refining operations, including guard beds used to desulfurize feeds to other catalytic reactors. (This listing does not include inert support media.)	(I,T)
Iron and steel:		
K061	Emission control dust or sludge from the primary production of steel in electric furnaces	(T)
K062	Spent pickle liquor generated by steel finishing operations of facilities within the iron and steel industry (SIC Codes 331 and 332)	(C,T)
Primary aluminum:		
K088	Spent potliners from primary aluminum reduction	(T)
Secondary lead:		
K069	Emission control dust or sludge from secondary lead smelting, except for sludge generated from secondary acid scrubber systems	(T)
K100	Waste leaching solution from acid leaching of emission control dust or sludge from secondary lead smelting	(T)
Veterinary pharmaceuticals:		
K084	Wastewater treatment sludges generated during the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds	(T)
K101	Distillation tar residues from the distillation of aniline-based compounds in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds	(T)

K102	Residue from the use of activated carbon for decolorization in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds	(T)
Ink formulation:		
K086	Solvent washes and sludges, caustic washes and sludges, or water washes and sludges from cleaning tubs and equipment used in the formulation of ink from pigments, driers, soaps, and stabilizers containing chromium and lead	(T)
Coking:		
K060	Ammonia still lime sludge from coking operations	(T)
K087	Decanter tank tar sludge from coking operations	(T)
K141	Process residues from the recovery of coal tar, including, but not limited to, collecting sump residues from the production of coke from coal or the recovery of coke by-products produced from coal. [This listing does not include K087 (decanter tank tar sludges from coking operations).]	(T)
K142	Tar storage tank residues from the production of coke from coal or from the recovery of coke by-products produced from coal	(T)
K143	Process residues from the recovery of light oil, including, but not limited to, those generated in stills, decanters, and wash oil recovery units from the recovery of coke by-products produced from coal	(T)
K144	Wastewater sump residues from light oil refining, including, but not limited to, intercepting or contamination sump sludges from the recovery of coke by-products produced from coal	(T)
K145	Residues from naphthalene collection and recovery operations from the recovery of coke by-products produced from coal	(T)
K147	Tar storage tank residues from coal tar refining	(T)
K148	Residues from coal tar distillation, including, but not limited to, still bottoms	(T)

(B) Listing specific definitions:

(1) For the purposes of the K181 listing, "dyes or pigments production" is defined to include manufacture of the following product classes: dyes, pigments, or "Food and Drug Administration" (FDA) certified colors that are classified as azo, triarylmethane, perylene or anthraquinone classes. Azo products include azo, monoazo, diazo, triazo, polyazo, azoic, benzidine, and pyrazolone products. Triarylmethane products include both triarylmethane and triphenylmethane products. Wastes that are not generated at a dyes or pigments manufacturing site, such as wastes from the offsite use, formulation, and packaging of dyes or pigments, are not included in the K181 listing.

(2) [Reserved.]

(C) K181 listing levels. Nonwastewaters containing constituents in amounts equal to or exceeding the following levels during any calendar year are subject to the K181 listing, unless the conditions in the K181 listing are met.

Constituent	Chemical abstracts number	Mass levels (kilograms per year)
Aniline	62-53-3	9,300
o-Anisidine	90-04-0	110
4-Chloroaniline	106-47-8	4,800
p-Cresidine	120-71-8	660
2,4-Dimethylaniline	95-68-1	100
1,2-Phenylenediamine	95-54-5	710
1,3-Phenylenediamine	108-45-2	1,200

(D) Procedures for demonstrating that dyes or pigment nonwastewaters are not K181. The procedures described in paragraphs (D)(1) to ~~(D)(3)(k)(iii)~~, (D)(3), and (D)(5) of this rule establish when nonwastewaters from the production of dyes or pigments would not be hazardous [these procedures apply to wastes that are not disposed in landfill units or treated in combustion units as specified in paragraph (A) of this rule]. If the nonwastewaters are disposed in landfill units or treated in combustion units as described in paragraph (A) of this rule, then the nonwastewaters are not hazardous. In order to demonstrate that the generator is meeting the landfill disposal or combustion

conditions contained in the K181 listing description, the generator shall maintain documentation as described in paragraph (D)(4) of this rule.

- (1) Determination based on no K181 constituents. Generators that have knowledge (e.g., knowledge of constituents in wastes based on prior sampling and analysis data or information about raw materials used, production processes used, and reaction and degradation products formed) that the generator's wastes contain none of the K181 constituents [see paragraph (C) of this rule] can use the generator's knowledge to determine that the generator's waste is not K181. The generator shall document the basis for all such determinations on an annual basis and keep each annual documentation for three years.
- (2) Determination for generated quantities of one thousand metric tons per year or less for wastes that contain K181 constituents. If the total annual quantity of dyes or pigment nonwastewaters generated is one thousand metric tons or less, the generator may use knowledge of the wastes (e.g., knowledge of constituents in wastes based on prior analytical data or information about raw materials used, production processes used, and reaction and degradation products formed) to conclude that annual mass loadings for the K181 constituents are below the listing levels in paragraph (C) of this rule. To make this determination, the generator shall:
 - (a) Each year document the basis for determining that the annual quantity of nonwastewaters expected to be generated will be less than one thousand metric tons.
 - (b) Track the actual quantity of nonwastewaters generated from January first to December thirty-first of each year. If, at any time within the year, the actual waste quantity exceeds one thousand metric tons, the generator shall comply with ~~paragraphs~~ paragraph (D)(3) to (D)(3)(k)(iii) of this rule for the remainder of the year.
 - (c) Keep a running total of the K181 constituent mass loadings over the course of the calendar year.
 - (d) Keep the following records on site for the three most recent calendar years in which the hazardous waste determinations are made:
 - (i) The quantity of dyes or pigment nonwastewaters generated.
 - (ii) The relevant process information used.
 - (iii) The calculations performed to determine annual total mass loadings for each K181 constituent in the nonwastewaters during the year.

(3) Determination for generated quantities greater than one thousand metric tons per year for wastes that contain K181 constituents. If the total annual quantity of dyes or pigment nonwastewaters generated is greater than one thousand metric tons, the generator shall perform all of the steps described in paragraphs (D)(3) (a) to ~~(D)(3)(k)(iii)~~(D)(3)(k) of this rule in order to make a determination that the generator's waste is not K181.

(a) Determine which K181 constituents [see paragraph ~~(D)(C)~~ of this rule] are reasonably expected to be present in the wastes based on knowledge of the wastes (e.g., based on prior sampling and analysis data or information about raw materials used, production processes used, and reaction and degradation products formed).

(b) If 1,2-phenylenediamine is present in the wastes, the generator may use either knowledge or sampling and analysis procedures to determine the level of this constituent in the wastes. For determinations based on use of knowledge, the generator shall comply with the procedures for using knowledge described in paragraph (D)(2) of this rule and keep the records described in paragraph (D)(2)(d) of this rule. For determinations based on sampling and analysis, the generator shall comply with the sampling and analysis and recordkeeping requirements described in paragraph (D) (4) of this rule.

(c) Develop a waste sampling and analysis plan (or modify an existing plan) to collect and analyze representative waste samples for the K181 constituents reasonably expected to be present in the wastes. At a minimum, the plan shall include:

(i) A discussion of the number of samples needed to characterize the wastes fully;

(ii) The planned sample collection method to obtain representative waste samples;

(iii) A discussion of how the sampling plan accounts for potential temporal and spatial variability of the wastes; and

(iv) A detailed description of the test methods to be used, including sample preparation, ~~clean-up~~cleanup (if necessary), and determinative methods.

(d) Collect and analyze samples in accordance with the waste sampling and analysis plan.

- (i) The sampling and analysis shall be unbiased, precise, and representative of the wastes.
 - (ii) The analytical measurements shall be sufficiently sensitive, accurate, and precise to support any claim that the constituent mass loadings are below the listing levels in paragraph (C) of this rule.
- (e) Record the analytical results.
- (f) Record the waste quantity represented by the sampling and analysis results.
- (g) Calculate constituent-specific mass loadings (product of concentrations and waste quantity).
- (h) Keep a running total of the K181 constituent mass loadings over the course of the calendar year.
- (i) Determine whether the mass of any of the K181 constituents listed in paragraph (C) of this rule generated between January first and December thirty-first of any year is below the K181 listing levels.
- (j) Keep the following records on site for the three most recent calendar years in which the hazardous waste determinations are made
- (i) The sampling and analysis plan.
 - (ii) The sampling and analysis results (including quality assurance or quality control data).
 - (iii) The quantity of dyes or pigment nonwastewaters generated.
 - (iv) The calculations performed to determine annual mass loadings.
- (k) Nonhazardous waste determinations shall be conducted annually to verify that the wastes remain nonhazardous.
- (i) The annual testing requirements are suspended after three consecutive successful annual demonstrations that the wastes are nonhazardous. The generator may then use knowledge of the wastes to support subsequent annual determinations.
 - (ii) The annual testing requirements are reinstated if the manufacturing or waste treatment processes generating the wastes are significantly

altered, resulting in an increase of the potential for the wastes to exceed the listing levels.

(iii) If the annual testing requirements are suspended, the generator shall keep records of the process knowledge information used to support a nonhazardous determination. If testing is reinstated, a description of the process change shall be retained.

(4) Recordkeeping for the landfill disposal and combustion exemptions. For the purposes of meeting the landfill disposal and combustion condition provided in the K181 listing description, the generator shall maintain on site for three years documentation demonstrating that each shipment of waste was received by a landfill unit that is subject to or meets the landfill design standards provided in the listing description, or was treated in combustion units as specified in the listing description.

(5) Waste holding and handling. During the interim period (that is, from the point of generation to completion of the hazardous waste determination), the generator is responsible for storing the wastes appropriately. If the wastes are determined to be hazardous and the generator has not complied with the "hazardous waste rules" (as defined in rule 3745-50-10 of the Administrative Code) during the interim period, the generator could be subject to an enforcement action for improper management.

[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."]

Effective: 10/23/2022

Five Year Review (FYR) Dates: 7/20/2022 and Exempt

CERTIFIED ELECTRONICALLY

Certification

10/11/2022

Date

Promulgated Under: 119.03
Statutory Authority: 3734.12
Rule Amplifies: 3734.12
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12/07/2004, 02/16/2009, 03/24/2017

3745-51-33

Discarded commercial chemical products, off-specification species, container residues, and spill residues thereof.

The following materials or items are hazardous wastes if and when the materials or items are discarded or intended to be discarded as described in paragraph (A)(2)(a) of rule 3745-51-02 of the Administrative Code, when the materials or items are mixed with waste oil or used oil or other material and applied to the land for dust suppression or road treatment, when the materials or items are otherwise applied to the land in lieu of the original intended use or when the materials or items are contained in products that are applied to the land in lieu of the original intended use, or when, in lieu of the original intended use, the materials ~~or~~ items are produced for use as (or as a component of) a fuel, distributed for use as a fuel, or burned as a fuel.

- (A) Any commercial chemical product, or manufacturing chemical intermediate, having the generic name listed in paragraph (E) or (F) of this rule.
- (B) Any off-specification commercial chemical product or manufacturing chemical intermediate which, if ~~it met~~ specifications are met, would have the generic name listed in paragraph (E) or (F) of this rule.
- (C) Any residue remaining in a container or in an inner liner removed from a container that has held any commercial chemical product or manufacturing chemical intermediate having the generic name listed in paragraph (E) or (F) of this rule, unless the container is "empty" as described in paragraph (B) of rule 3745-51-07 or rule 3745-266-507 of the Administrative Code.

[Comment: Unless the residue is being beneficially used or reused, or legitimately recycled or reclaimed, or being accumulated, stored, transported, or treated prior to such use, re-use, recycling, or reclamation, Ohio EPA considers the residue to be intended for discard, and thus, a hazardous waste. An example of a legitimate re-use of the residue would be where the residue remains in the container and the container is used to hold the same commercial chemical product or manufacturing chemical intermediate the container previously held. An example of the discard of the residue would be where the drum is sent to a drum reconditioner who reconditions the drum but discards the residue.]

- (D) Any residue or contaminated soil, water or other debris resulting from the cleanup of a spill, into or on any land or water, of any commercial chemical product or manufacturing chemical intermediate having the generic name listed in paragraph (E) or (F) of this rule, or any residue or contaminated soil, water, or other debris resulting from the cleanup of a spill, into or on any land or water, of any off-specification chemical product and manufacturing chemical intermediate which, if ~~it met~~ specifications are met, would have the generic name listed in paragraph (E) or (F) of this rule.

[Comment: As used in this rule, the phrase "commercial chemical products or manufacturing chemical intermediates having the generic name listed in ... " refers to a chemical substance which is manufactured or formulated for commercial or manufacturing use which consists of the commercially pure grade of the chemical, any technical grades of the chemical that are produced or marketed, and all formulations in which the chemical is the sole active ingredient. That term does not refer to a material, such as a manufacturing process waste, that contains any of the substances listed in paragraph (E) or (F) of this rule. Where a manufacturing process waste is deemed to be a hazardous waste because such waste contains a substance listed in paragraph (E) or (F) of this rule, such waste shall be listed in either rule 3745-51-31 or 3745-51-32 of the Administrative Code, or shall be identified as a hazardous waste by the characteristics identified in rules 3745-51-20 to 3745-51-24 of the Administrative Code.]

- (E) The commercial chemical products, manufacturing chemical intermediates or off-specification commercial chemical products or manufacturing chemical intermediates referred to in paragraphs (A) to (D) of this rule are identified as acute hazardous wastes (H) ~~and are subject to the small quantity exclusion described in paragraph (E) of rule 3745-51-05 of the Administrative Code.~~

[Comment: For the convenience of the regulated community, the primary hazardous properties of these materials have been indicated by the letters T (toxicity), and R (reactivity). Absence of a letter indicates that the compound ~~only~~ is listed only for acute toxicity. Wastes are first listed in alphabetical order by substance and then listed again in numerical order by EPA hazardous waste number.]

These wastes and their corresponding EPA hazardous waste numbers are:

(E) Alphabetical List

EPA Hazardous Waste Number	CAS #	Substance
P023	107-20-0	Acetaldehyde, chloro-
P002	591-08-2	Acetamide, N-(aminothioxomethyl)-
P057	640-19-7	Acetamide, 2-fluoro-
P058	62-74-8	Acetic acid, fluoro-, sodium salt
P002	591-08-2	1-Acetyl-2-thiourea

P003	107-02-8	Acrolein
P070	116-06-3	Aldicarb
P203	1646-88-4	Aldicarb sulfone
P004	309-00-2	Aldrin
P005	107-18-6	Allyl alcohol
P006	20859-73-8	Aluminum phosphide (R,T)
P007	2763-96-4	5-(Aminomethyl)-3-isoxazolol
P008	504-24-5	4-Aminopyridine
P009	131-74-8	Ammonium picrate (R)
P119	7803-55-6	Ammonium vanadate
P099	506-61-6	Argentate(1-), bis(cyano-C)-, potassium
P010	7778-39-4	Arsenic acid H_3AsO_4
P012	1327-53-3	Arsenic oxide As_2O_3
P011	1303-28-2	Arsenic oxide As_2O_5
P011	1303-28-2	Arsenic pentoxide
P012	1327-53-3	Arsenic trioxide
P038	692-42-2	Arsine, diethyl-
P036	696-28-6	Arsonous dichloride, phenyl-
P054	151-56-4	Aziridine
P067	75-55-8	Aziridine, 2-methyl-
P013	542-62-1	Barium cyanide
P024	106-47-8	Benzenamine, 4-chloro-
P077	100-01-6	Benzenamine, 4-nitro-

P028	100-44-7	Benzene, (chloromethyl)-
P042	51-43-4	1,2-Benzenediol, 4-[1-hydroxy-2-(methylamino)ethyl]-, (R)-
P046	122-09-8	Benzeneethanamine, alpha,alpha-dimethyl-
P014	108-98-5	Benzenethiol
P127	1563-66-2	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl-, methylcarbamate
P188	57-64-7	Benzoic acid, 2hydroxy-, compd. with 3aS-cis)-1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethylpyrrolo [2,3-b]indol-5yl methylcarbamate ester (1:1)
P001	81-81-2 *	2H-1-Benzopyran-2-one, -hydroxy-3-(3-oxo-1-phenylbutyl)-, and salts, when present at concentrations greater than 0.3 per cent
P028	100-44-7	Benzyl chloride
P015	7440-41-7	Beryllium powder
P017	598-31-2	Bromoacetone
P018	357-57-3	Brucine
P045	39196-18-4	2-Butanone, 3,3-dimethyl-1-(methylthio)-, - [(methylamino)carbonyl] oxime
P021	592-01-8	Calcium cyanide
P021	592-01-8	Calcium cyanide $\text{Ca}(\text{CN})_2$
P189	55285-14-8	Carbamic acid, [(dibutylamino)-thio]methyl-, 2,3-dihydro-2,2-dimethyl- 7benzofuranyl ester
P191	644-64-4	Carbamic acid, dimethyl-, 1-[(dimethyl-amino) carbonyl]-5-methyl-1H-pyrazol-3yl ester
P192	119-38-0	Carbamic acid, dimethyl-, 3-methyl-1-(1-methylethyl)-1H-pyrazol-5-yl ester
P190	1129-41-5	Carbamic acid, methyl-, 3-methylphenyl ester
P127	1563-66-2	Carbofuran

P022	75-15-0	Carbon disulfide
P095	75-44-5	Carbonic dichloride
P189	55285-14-8	Carbosulfan
P023	107-20-0	Chloroacetaldehyde
P024	106-47-8	p-Chloroaniline
P026	5344-82-1	1-(o-Chlorophenyl)thiourea
P027	542-76-7	3-Chloropropionitrile
P029	544-92-3	Copper cyanide
P029	544-92-3	Copper cyanide Cu(CN)
P202	64-00-6	m-Cumenyl methylcarbamate
P030	-----	Cyanides (soluble cyanide salts), not otherwise specified
P031	460-19-5	Cyanogen
P033	506-77-4	Cyanogen chloride
P033	506-77-4	Cyanogen chloride (CN)Cl
P034	131-89-5	2-Cyclohexyl-4,6-dinitrophenol
P016	542-88-1	Dichloromethyl ether
P036	696-28-6	Dichlorophenylarsine
P037	60-57-1	Dieldrin
P038	692-42-2	Diethylarsine
P041	311-45-5	Diethyl-p-nitrophenyl phosphate
P040	297-97-2	O,O-Diethyl O-pyrazinyl phosphorothioate
P043	55-91-4	Diisopropylfluorophosphate (DFP)

P004	309-00-2	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexa-chloro-1,4,4a,5,8,8a,-hexahydro-, (1alpha,4alpha,4abeta,5alpha,8alpha,8abeta)-
P060	465-73-6	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexa-chloro1, 4,4a,5,8,8a-hexahydro-, (1alpha,4alpha,4abeta,5beta,8beta,8abeta)-
P037	60-57-1	2,7:3,6-Dimethanonaphth [2,3-b]oxirene,3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2aalpha,3beta,6beta,6aalpha,7beta,7aalpha)-
P051	72-20-8 *	2,7:3,6-Dimethanonaphth [2,3-b]oxirene,3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta, 2abeta,3alpha,6alpha,6abeta,7beta,7aalpha)-, and metabolites
P044	60-51-5	Dimethoate
P046	122-09-8	alpha,alpha-Dimethylphenethylamine
P191	644-64-4	Dimetilan
P047	534-52-1 *	4,6-Dinitro-o-cresol, and salts
P048	51-28-5	2,4-Dinitrophenol
P020	88-85-7	Dinoseb
P085	152-16-9	Diphosphoramidate, octamethyl-
P111	107-49-3	Diphosphoric acid, tetraethyl ester
P039	298-04-4	Disulfoton
P049	541-53-7	Dithiobiuret
P185	26419-73-8	1,3-Dithiolane-2-carboxaldehyde, 2,4-dimethyl-, O-[(methylamino)-carbonyl]oxime
P050	115-29-7	Endosulfan
P088	145-73-3	Endothall
P051	72-20-8	Endrin

P051	72-20-8	Endrin, and metabolites
P042	51-43-4	Epinephrine
P031	460-19-5	Ethanedinitrile
P194	23135-22-0	Ethanimidothioic acid, 2-(dimethylamino)-N-[[methylamino]carbonyl]oxy]-2-oxo-, methyl ester
P066	16752-77-5	Ethanimidothioic acid, N-[[methylamino]carbonyl]oxy]-, methyl ester
P101	107-12-0	Ethyl cyanide
P054	151-56-4	Ethyleneimine
P097	52-85-7	Famphur
P056	7782-41-4	Fluorine
P057	640-19-7	Fluoroacetamide
P058	62-74-8	Fluoroacetic acid, sodium salt
P198	23422-53-9	Formetanate hydrochloride
P197	17702-57-7	Formparanate
P065	628-86-4	Fulminic acid, mercury(2+) salt (R,T)
P059	76-44-8	Heptachlor
P062	757-58-4	Hexaethyl tetraphosphate
P116	79-19-6	Hydrazinecarbothioamide
P068	60-34-4	Hydrazine, methyl-
P063	74-90-8	Hydrocyanic acid
P063	74-90-8	Hydrogen cyanide
P096	7803-51-2	Hydrogen phosphide
P060	465-73-6	Isodrin

P192	119-38-0	Isolan
P202	64-00-6	3-Isopropylphenyl N-methylcarbamate
P007	2763-96-4	3(2H)-Isoxazolone, 5-(aminomethyl)-
P196	15339-36-3	Manganese, bis(dimethylcarbamodithioata-S,S')-,
P196	15339-36-3	Manganese, dimethyldithiocarbamate
P092	62-38-4	Mercury, (acetato-O)phenyl-
P065	628-86-4	Mercury fulminate (R,T)
P082	62-75-9	Methanamine, N-methyl-N-nitroso-
P064	624-80-9	Methane, isocyanato-
P016	542-88-1	Methane, oxybis[chloro-
P112	509-14-8	Methane, tetranitro- (R)
P118	75-70-7	Methanethiol, trichloro-
P198	23422-53-9	Methanimidamide, N,N-dimethyl-N'-[3-[[[(methylamino)-carbonyl]oxy]phenyl]-, monohydrochloride
P197	17702-57-7	Methanimidamide, N-dimethyl-N'- [2-methyl-4-[[[(methylamino) carbonyl]oxy]phenyl]-
P199	2032-65-7	Methiocarb
P050	115-29-7	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide
P059	76-44-8	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-
P066	16752-77-5	Methomyl
P068	60-34-4	Methyl hydrazine
P064	624-83-9	Methyl isocyanate
P069	75-86-5	2-Methylactonitrile

P071	298-00-0	Methyl parathion
P190	1129-41-5	Metolcarb
P128	315-18-4	Mexacarbate
P072	86-88-4	alpha-Naphthylthiourea
P073	13463-39-3	Nickel carbonyl
P073	13463-39-3	Nickel carbonyl Ni(CO) ₄ , (T-4)-
P074	557-19-7	Nickel cyanide
P074	557-19-7	Nickel cyanide Ni(CN) ₂
P075	54-11-5 *	Nicotine, and salts <u>(this listing does not include patches, gums and lozenges that are "FDA-approved" over-the-counter nicotine replacement therapies)</u>
P076	10102-43-9	Nitric oxide
P077	100-01-6	p-Nitroaniline
P078	10102-44-0	Nitrogen dioxide
P076	100-01-6	Nitrogen oxide NO
P078	10102-44-0	Nitrogen oxide NO ₂
P081	55-63-0	Nitroglycerine (R)
P082	62-75-9	N-Nitrosodimethylamine
P084	4549-40-0	N-Nitrosomethylvinylamine
P085	152-16-9	Octamethylpyrophosphoramidate
P087	20816-12-0	Osmium oxide OsO ₄ , (T-4)-
P087	20816-12-0	Osmium tetroxide
P088	145-73-3	7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid
P194	23135-22-0	Oxamyl

P089	56-38-2	Parathion
P034	131-89-5	Phenol, 2-cyclohexyl-4,6-dinitro-
P128	315-18-4	Phenol, 4-(dimethylamino)-3,5-dimethyl-, methylcarbamate (ester)
P199	2032-65-7	Phenol, (3,5-dimethyl-4-(methylthio)-, methylcarbamate
P048	51-28-5	Phenol, 2,4-dinitro-
P047	534-52-1 *	Phenol, 2-methyl-4,6-dinitro-, and salts
P201	2631-37-0	Phenol, 3-methyl-5-(1-methylethyl)-, methyl carbamate
P202	64-00-6	Phenol, 3-(1-methylethyl)-, methyl carbamate
P020	88-85-7	Phenol, 2-(1-methylpropyl)-4,6-dinitro-
P009	131-74-8	Phenol, 2,4,6-trinitro-, ammonium salt (R)
P092	62-38-4	Phenylmercury acetate
P093	103-85-5	Phenylthiourea
P204	57-47-6	Physostigmine
P188	57-64-7	Physostigmine salicylate
P094	298-02-2	Phorate
P095	75-44-5	Phosgene
P096	7803-51-2	Phosphine
P041	311-45-5	Phosphoric acid, diethyl 4-nitrophenyl ester
P039	298-04-4	Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl] ester
P094	298-02-2	Phosphorodithioic acid, O,O-diethyl S-[(ethylthio)methyl] ester
P044	60-51-5	Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl] ester
P043	55-91-4	Phosphorofluoridic acid, bis(1-methylethyl) ester

P089	56-38-2	Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester
P040	297-97-2	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester
P097	52-85-7	Phosphorothioic acid, O-[4-[(dimethylamino)sulfonyl]phenyl] O,O-dimethyl ester
P071	298-00-0	Phosphorothioic acid, O,O,-dimethyl O-(4-nitrophenyl) ester
P110	78-00-2	Plumbane, tetraethyl-
P098	151-50-8	Potassium cyanide
P098	151-50-8	Potassium cyanide K(CN)
P099	506-61-6	Potassium silver cyanide
P201	2631-37-0	Promecarb
P203	1646-88-4	Propanal, 2-methyl-2-(methyl-sulfonyl)-, O-[(methylamino)carbonyl] oxime
P070	116-06-3	Propanal, 2-methyl-2-(methylthio)-, -[(methylamino)carbonyl]oxime
P101	107-12-0	Propanenitrile
P027	542-76-7	Propanenitrile, 3-chloro-
P069	75-86-5	Propanenitrile, 2-hydroxy-2-methyl-
P081	55-63-0	1,2,3-Propanetriol, trinitrate (R)
P017	598-31-2	2-Propanone, 1-bromo-
P102	107-19-7	Propargyl alcohol
P003	107-02-8	2-Propenal
P005	107-18-6	2-Propen-1-ol
P067	75-55-8	1,2-Propylenimine
P102	107-19-7	2-Propyn-1-ol
P008	504-24-5	4-Pyridinamine

P075	54-11-5 *	Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)-, and salts (<u>this listing does not include patches, gums and lozenges that are "FDA-approved" over-the-counter nicotine replacement therapies</u>)
P204	57-47-6	Pyrrolo[2,3-b]indol-5-ol, 1,2,3,3a,8,8a-hexahydro- 1,3a,8-thrimethyl-, methylcarbamate (ester), (3aS-cis)-
P114	12039-52-0	Selenious acid, dithallium(1+) salt
P103	630-10-4	Selenourea
P104	506-64-9	Silver cyanide
P104	506-64-9	Silver cyanide Ag(CN)
P105	26628-22-8	Sodium azide
P106	143-33-9	Sodium cyanide
P106	143-33-9	Sodium cyanide Na(CN)
P108	57-24-9 *	Strychnidin-10-one, and salts
P018	357-57-3	Strychnidin-10-one, 2,3-dimethoxy-
P108	57-24-9 *	Strychnine, and salts
P115	7446-18-6	Sulfuric acid, dithallium(1+) salt
P109	3689-24-5	Tetraethyldithiopyrophosphate
P110	78-00-2	Tetraethyl lead
P111	107-49-3	Tetraethyl pyrophosphate
P112	509-14-8	Tetranitromethane (R)
P062	757-58-4	Tetraphosphoric acid, hexaethyl ester
P113	1314-32-5	Thallic oxide
P113	1314-32-5	Thallium oxide Tl ₂ O ₃
P114	12039-52-0	Thallium(I) selenite

P115	7446-18-6	Thallium(I) sulfate
P109	3689-24-5	Thiodiphosphoric acid, tetraethyl ester
P045	39196-18-4	Thiofanox
P049	541-53-7	Thioimidodicarbonic diamide [(H ₂ N)C(S)] ₂ NH
P014	108-98-5	Thiophenol
P116	79-19-6	Thiosemicarbazide
P026	5344-82-1	Thiourea, (2-chlorophenyl)-
P072	86-88-4	Thiourea, 1-naphthalenyl-
P093	103-85-5	Thiourea, phenyl-
P185	26419-73-8	Tirpate
P123	8001-35-2	Toxaphene
P118	75-70-7	Trichloromethanethiol
P119	7803-55-6	Vanadic acid, ammonium salt
P120	1314-62-1	Vanadium oxide V ₂ O ₅
P120	1314-62-1	Vanadium pentoxide
P084	4549-40-0	Vinylamine, N-methyl-N-nitroso-
P001	81-81-2 *	Warfarin, and salts, when present at concentrations greater than 0.3 per cent
P205	137-30-4	Zinc, bis(dimethylcarbamodithioato-S,S')-
P121	557-21-1	Zinc cyanide
P121	557-21-1	Zinc cyanide Zn(CN) ₂
P122	1314-84-7	Zinc phosphide Zn ₃ P ₂ , when present at concentrations greater than 10 per cent (R,T)
P205	137-30-4	Ziram

* CAS number given for parent compound only.

(E) Numerical List

P001	81-81-2 *	2H-1-Benzopyran-2-one, -hydroxy-3-(3-oxo-1-phenylbutyl)-, and salts, when present at concentrations greater than 0.3 per cent
P001	81-81-2 *	Warfarin, and salts, when present at concentrations greater than 0.3 per cent
P002	591-08-2	Acetamide, N-(aminothioxomethyl)-
P002	591-08-2	1-Acetyl-2-thiourea
P003	107-02-8	Acrolein
P003	107-02-8	2-Propenal
P004	309-00-2	Aldrin
P004	309-00-2	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexa-chloro-1,4,4a,5,8,8a,-hexahydro-, (1alpha,4alpha,4abeta,5alpha,8alpha,8abeta)-
P005	107-18-6	Allyl alcohol
P005	107-18-6	2-Propen-1-ol
P006	20859-73-8	Aluminum phosphide (R,T)
P007	2763-96-4	5-(Aminomethyl)-3-isoxazolol
P007	2763-96-4	3(2H)-Isoxazolone, 5-(aminomethyl)-
P008	504-24-5	4-Aminopyridine
P008	504-24-5	4-Pyridinamine
P009	131-74-8	Ammonium picrate (R)
P009	131-74-8	Phenol, 2,4,6-trinitro-, ammonium salt (R)
P010	7778-39-4	Arsenic acid H ₃ AsO ₄

P011	1303-28-2	Arsenic oxide As_2O_5
P011	1303-28-2	Arsenic pentoxide
P012	1327-53-3	Arsenic oxide As_2O_3
P012	1327-53-3	Arsenic trioxide
P013	542-62-1	Barium cyanide
P014	108-98-5	Benzenethiol
P014	108-98-5	Thiophenol
P015	7440-41-7	Beryllium powder
P016	542-88-1	Dichloromethyl ether
P016	542-88-1	Methane, oxybis[chloro-
P017	598-31-2	Bromoacetone
P017	598-31-2	2-Propanone, 1-bromo-
P018	357-57-3	Brucine
P018	357-57-3	Strychnidin-10-one, 2,3-dimethoxy-
P020	88-85-7	Dinoseb
P020	88-85-7	Phenol, 2-(1-methylpropyl)-4,6-dinitro-
P021	592-01-8	Calcium cyanide
P021	592-01-8	Calcium cyanide $\text{Ca}(\text{CN})_2$
P022	75-15-0	Carbon disulfide
P023	107-20-0	Acetaldehyde, chloro-
P023	107-20-0	Chloroacetaldehyde
P024	106-47-8	Benzenamine, 4-chloro-
P024	106-47-8	p-Chloroaniline

P026	5344-82-1	1-(o-Chlorophenyl)thiourea
P026	5344-82-1	Thiourea, (2-chlorophenyl)-
P027	542-76-7	3-Chloropropionitrile
P027	542-76-7	Propanenitrile, 3-chloro-
P028	100-44-7	Benzene, (chloromethyl)-
P028	100-44-7	Benzyl chloride
P029	544-92-3	Copper cyanide
P029	544-92-3	Copper cyanide Cu(CN)
P030	----	Cyanides (soluble cyanide salts), not otherwise specified
P031	460-19-5	Cyanogen
P031	460-19-5	Ethanedinitrile
P033	506-77-4	Cyanogen chloride
P033	506-77-4	Cyanogen chloride (CN)Cl
P034	131-89-5	2-Cyclohexyl-4,6-dinitrophenol
P034	131-89-5	Phenol, 2-cyclohexyl-4,6-dinitro-
P036	696-57-1	Arsonous dichloride, phenyl-
P036	696-57-1	Dichlorophenylarsine
P037	60-57-1	Dieldrin
P037	60-57-1	2,7:3,6-Dimethanonaphth [2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-,(1aalpha,2beta,2aalpha,3beta,6beta,6aalpha,7beta,7aalpha)-
P038	692-42-2	Arsine, diethyl-
P038	692-42-2	Diethylarsine
P039	298-04-4	Disulfoton

P039	298-04-4	Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl] ester
P040	297-97-2	O,O-Diethyl O-pyrazinyl phosphorothioate
P040	297-97-2	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester
P041	311-45-5	Diethyl-p-nitrophenyl phosphate
P041	311-45-5	Phosphoric acid, diethyl 4-nitrophenyl ester
P042	51-43-4	1,2-Benzenediol, 4-[1-hydroxy-2-(methylamino)ethyl]-, (R)-
P042	51-43-4	Epinephrine
P043	55-91-4	Diisopropylfluorophosphate (DFP)
P043	55-91-4	Phosphorofluoridic acid, bis(1-methylethyl) ester
P044	60-51-5	Dimethoate
P044	60-51-5	Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl] ester
P045	39196-18-4	2-Butanone, 3,3-dimethyl-1-(methylthio)-, O-[(methylamino)carbonyl] oxime
P045	39196-18-4	Thiofanox
P046	122-09-8	Benzeneethanamine, alpha,alpha-dimethyl-
P046	122-09-8	alpha,alpha-Dimethylphenethylamine
P047	534-52-1 *	4,6-Dinitro-o-cresol, and salts
P047	534-52-1 *	Phenol, 2-methyl-4,6-dinitro-, and salts
P048	51-28-5	2,4-Dinitrophenol
P048	51-28-5	Phenol, 2,4-dinitro-
P049	541-53-7	Dithiobiuret
P049	541-53-7	Thioimidodicarbonic diamide [(H ₂ N)C(S)] ₂ NH
P050	115-29-7	Endosulfan

P050	115-29-7	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide
P051	72-20-8 *	2,7:3,6-Dimethanonaphth [2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2abeta, 3alpha,6alpha,6abeta,7beta,7aalpha)-, and metabolites
P051	72-20-8	Endrin
P051	72-20-8	Endrin, and metabolites
P054	151-56-4	Aziridine
P054	151-56-4	Ethyleneimine
P056	7782-41-4	Fluorine
P057	640-19-7	Acetamide, 2-fluoro-
P057	640-19-7	Fluoroacetamide
P058	62-74-8	Acetic acid, fluoro-, sodium salt
P058	62-74-8	Fluoroacetic acid, sodium salt
P059	76-44-8	Heptachlor
P059	76-44-8	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-
P060	465-73-6	1,4,5,8-Dimethanonaphthalene,1,2,3,4,10,10-hexa-chloro-1,4,4a,5,8,8a-hexahydro-, (1alpha,4alpha,4abeta,5beta,8beta,8abeta)-
P060	465-73-6	Isodrin
P062	757-58-4	Hexaethyl tetraphosphate
P062	757-58-4	Tetraphosphoric acid, hexaethyl ester
P063	74-90-8	Hydrocyanic acid
P063	74-90-8	Hydrogen cyanide
P064	624-83-9	Methane, isocyanato-

P064	624-83-9	Methyl isocyanate
P065	628-86-4	Fulminic acid, mercury(2+) salt (R,T)
P065	628-86-4	Mercury fulminate (R,T)
P066	16752-77-5	Ethanimidothioic acid, N-[[[(methylamino)carbonyl]oxy]-, methyl ester
P066	16752-77-5	Methomyl
P067	75-55-8	Aziridine, 2-methyl-
P067	75-55-8	1,2-Propylenimine
P068	60-34-4	Hydrazine, methyl-
P068	60-34-4	Methyl hydrazine
P069	75-86-5	2-Methylactonitrile
P069	75-86-5	Propanenitrile, 2-hydroxy-2-methyl-
P070	116-06-3	Aldicarb
P070	116-06-3	Propanal, 2-methyl-2-(methylthio)-, O-[(methylamino)carbonyl]oxime
P071	298-00-0	Methyl parathion
P071	298-00-0	Phosphorothioic acid, O,O,-dimethyl O-(4-nitrophenyl) ester
P072	86-88-4	alpha-Naphthylthiourea
P072	86-88-4	Thiourea, 1-naphthalenyl-
P073	13463-39-3	Nickel carbonyl
P073	13463-39-3	Nickel carbonyl Ni(CO) ₄ , (T-4)-
P074	57-19-7	Nickel cyanide
P074	57-19-7	Nickel cyanide Ni(CN) ₂

P075	54-11-5 *	Nicotine, and salts (<u>this listing does not include patches, gums and lozenges that are "FDA-approved" over-the-counter nicotine replacement therapies</u>)
P075	54-11-5 *	Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)-, and salts (<u>this listing does not include patches, gums and lozenges that are "FDA-approved" over-the-counter nicotine replacement therapies</u>)
P076	10102-43-9	Nitric oxide
P076	10102-43-9	Nitrogen oxide NO
P077	100-01-6	Benzenamine, 4-nitro-
P077	100-01-6	p-Nitroaniline
P078	10102-44-0	Nitrogen dioxide
P078	10102-44-0	Nitrogen oxide NO ₂
P081	55-63-0	Nitroglycerine (R)
P081	55-63-0	1,2,3-Propanetriol, trinitrate (R)
P082	62-75-9	Methanamine, N-methyl-N-nitroso-
P082	62-75-9	N-Nitrosodimethylamine
P084	4549-40-0	N-Nitrosomethylvinylamine
P084	4549-40-0	Vinylamine, N-methyl-N-nitroso-
P085	152-16-9	Diphosphoramidate, octamethyl-
P085	152-16-9	Octamethylpyrophosphoramidate
P087	20816-12-0	Osmium oxide OsO ₄ , (T-4)-
P087	20816-12-0	Osmium tetroxide
P088	145-73-3	Endothall
P088	145-73-3	7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid
P089	56-38-2	Parathion

P089	56-38-2	Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester
P092	62-38-4	Mercury, (acetato-O)phenyl
P092	62-38-4	Phenylmercury acetate
P093	103-85-5	Phenylthiourea
P093	103-85-5	Thiourea, phenyl-
P094	298-02-2	Phorate
P094	298-02-2	Phosphorodithioic acid, O,O-diethyl S-[(ethylthio)methyl] ester
P095	75-44-5	Carbonic dichloride
P095	75-44-5	Phosgene
P096	7803-51-2	Hydrogen phosphide
P096	7803-51-2	Phosphine
P097	52-85-7	Famphur
P097	52-85-7	Phosphorothioic acid, O-[4-[(dimethylamino) sulfonyl]phenyl] O,O-dimethyl ester
P098	151-50-8	Potassium cyanide
P098	151-50-8	Potassium cyanide K(CN)
P099	506-61-6	Argentate(1-), bis(cyano-C)-, potassium
P099	506-61-6	Potassium silver cyanide
P101	107-12-0	Ethyl cyanide
P101	107-12-0	Propanenitrile
P102	107-19-7	Propargyl alcohol
P102	107-19-7	2-Propyn-1-ol
P103	630-10-4	Selenourea
P104	506-64-9	Silver cyanide

P104	506-64-9	Silver cyanide Ag(CN)
P105	26628-22-8	Sodium azide
P106	143-33-9	Sodium cyanide
P106	143-33-9	Sodium cyanide Na(CN)
P108	157-24-9 *	Strychnidin-10-one, and salts
P108	157-24-9 *	Strychnine, and salts
P109	3689-24-5	Tetraethyldithiopyrophosphate
P109	3689-24-5	Thiodiphosphoric acid, tetraethyl ester
P110	78-00-2	Plumbane, tetraethyl-
P110	78-00-2	Tetraethyl lead
P111	107-49-3	Diphosphoric acid, tetraethyl ester
P111	107-49-3	Tetraethyl pyrophosphate
P112	509-14-8	Methane, tetranitro- (R)
P112	509-14-8	Tetranitromethane (R)
P113	1314-32-5	Thallic oxide
P113	1314-32-5	Thallium oxide Tl ₂ O ₃
P114	12039-52-0	Selenious acid, dithallium(1+) salt
P114	12039-52-0	Thallium(I) selenite
P115	7446-18-6	Sulfuric acid, dithallium(1+) salt
P115	7446-18-6	Thallium(I) sulfate
P116	79-19-6	Hydrazinecarbothioamide
P116	79-19-6	Thiosemicarbazide
P118	75-70-7	Methanethiol, trichloro-
P118	75-70-7	Trichloromethanethiol

P119	7803-55-6	Ammonium vanadate
P119	7803-55-6	Vanadic acid, ammonium salt
P120	1314-62-1	Vanadium oxide V ₂ O ₅
P120	1314-62-1	Vanadium pentoxide
P121	557-21-1	Zinc cyanide
P121	557-21-1	Zinc cyanide Zn(CN) ₂
P122	1314-84-7	Zinc phosphide Zn ₃ P ₂ , when present at concentrations greater than 10 per cent (R, T)
P123	8001-35-2	Toxaphene
P127	1563-66-2	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl-, methylcarbamate
P127	1563-66-2	Carbofuran
P128	315-18-4	Mexacarbate
P128	315-18-4	Phenol, 4-(dimethylamino)-3,5-dimethyl-, methylcarbamate (ester)
P185	26419-73-8	1,3-Dithiolane-2-carboxaldehyde, 2,4-dimethyl-, O-[(methylamino)-carbonyl]oxime
P185	26419-73-8	Tirpate
P188	57-64-7	Benzoic acid, 2hydroxy-, compd. With (3aS-cis)- 1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethylpyrrolo [2,3-b]indol-5yl methylcarbamate ester (1:1)
P188	57-64-7	Physostigmine salicylate
P189	55285-14-8	Carbamic acid, [(dibutylamino)-thio]methyl-, 2,3-dihydro-2,2-dimethyl- 7benzofuranyl ester
P189	55285-14-8	Carbosulfan
P190	1129-41-5	Carbamic acid, methyl-, 3-methylphenyl ester
P190	1129-41-5	Metolcarb

P191	644-64-4	Carbamic acid, dimethyl-, 1-[(dimethyl-amino)carbonyl]- 5-methyl-1H-pyrazol-3yl ester
P191	644-64-4	Dimetilan
P192	119-38-0	Carbamic acid, dimethyl-, 3-methyl-1-(1-methylethyl)-1H-pyrazol-5-yl ester
P192	119-38-0	Isolan
P194	23135-22-0	Ethanimidothioic acid, 2-(dimethylamino)-N- [[(methylamino) carbonyl]oxy]-2-oxo-, methyl ester
P194	23135-22-0	Oxamyl
P196	15339-36-3	Manganese, bis(dimethylcarbomodithioata-S,S')-,
P196	15339-36-3	Manganese, dimethyldithiocarbamate
P197	17702-57-7	Formparanate
P197	17702-57-7	Methanimidamide, N,N-dimethyl-N'- [2-methyl-4-[[[(methylamino)carbonyl]oxy]phenyl]-
P198	23422-53-9	Formetanate hydrochloride
P198	23422-53-9	Methanimidamide, N,N-dimethyl-N'-[3- [[(methylamino)-carbonyl]oxy]phenyl]-, monohydrochloride
P199	2032-65-7	Methiocarb
P199	2032-65-7	Phenol, (3,5-dimethyl-4-(methylthio)-, methylcarbamate
P201	2631-37-0	Phenol, 3-methyl-5-(1-methylethyl)-, methyl carbamate
P201	2631-37-0	Promecarb
P202	64-00-6	m-Cumenyl methylcarbamate
P202	64-00-6	3-Isopropylphenyl N-methylcarbamate
P202	64-00-6	Phenol, 3-(1-methylethyl)-, methyl carbamate
P203	1646-88-4	Aldicarb sulfone

P203	1646-88-4	Propanal, 2-methyl-2-(methyl-sulfonyl)-, O- [(methylamino)carbonyl] oxime
P204	57-47-6	Physostigmine
P204	57-47-6	Pyrrolo[2,3-b]indol-5-ol, 1,2,3,3a,8,8a-hexahydro1,3a,8- thrimethyl-, methylcarbamate (ester), (3aS-cis)-
P205	137-30-4	Zinc, bis(dimethylcarbamo-dithioato-S,S')-
P205	137-30-4	Ziram
* CAS Number given for parent compound only		

"FDA" means the federal food and drug administration.

- (F) The commercial chemical products, manufacturing chemical intermediates, or off-specification commercial chemical products referred to in paragraphs (A) to (D) of this rule, are identified as toxic wastes (T) unless otherwise designated ~~and are subject to the small quantity generator exclusion defined in paragraphs (A) and (G) of rule 3745-51-05 of the Administrative Code.~~

[Comment: For the convenience of the regulated community, the primary hazardous properties of these materials have been indicated by the letters T (toxicity), R (reactivity), I (ignitability) and C (corrosivity). Absence of a letter indicates that the compound is only listed for toxicity. Wastes are first listed in alphabetical order by substance and then listed again in numerical order by EPA hazardous waste number.]

These wastes and corresponding EPA hazardous waste numbers are:

(F) Alphabetical List

EPA Hazardous Waste #	CAS #	Substance
U394	30558-43-1	A2213
U001	75-07-0	Acetaldehyde (I)
U034	75-87-6	Acetaldehyde, trichloro-
U187	62-44-2	Acetamide, N-(4-ethoxyphenyl)-

U005	53-96-3	Acetamide, N-9H-fluoren-2-yl-
U240	94-75-7 *	Acetic acid, (2,4-dichlorophenoxy)-, salts and esters
U112	141-78-6	Acetic acid ethyl ester (I)
U144	301-04-2	Acetic acid, lead(2+) salt
U214	563-68-8	Acetic acid, thallium(1+) salt
See F027	93-76-5	Acetic acid, (2,4,5-trichlorophenoxy)-
U002	67-64-1	Acetone (I)
U003	75-05-8	Acetonitrile (I,T)
U004	98-86-2	Acetophenone
U005	53-96-3	2-Acetylaminofluorene
U006	75-36-5	Acetyl chloride (C,R,T)
U007	79-06-1	Acrylamide
U008	79-10-7	Acrylic acid (I)
U009	107-13-1	Acrylonitrile
U011	61-82-5	Amitrole
U012	62-53-3	Aniline (I,T)
U136	75-60-5	Arsinic acid, dimethyl
U014	492-80-8	Auramine
U015	115-02-6	Azaserine
U101	50-07-7	Azirino[2',3':3,4]pyrrolo[1,2-a]indole-4,7-dione, 6-amino-8- [[aminocarbonyloxy]methyl]- 1,1a,2,8,8a,8b-hexahydro-8a- methoxy-5-methyl-, [1aS-(1aalpha, 8beta,8aalpha,8balpha)]-
U280	101-27-9	Barban
U278	22781-23-3	Bendiocarb

U364	22961-82-6	Bendiocarb phenol
U271	17804-35-2	Benomyl
U157	56-49-5	Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-
U016	225-51-4	Benz[c]acridine
U107	98-87-3	Benzal chloride
U192	23950-58-5	Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-
U018	56-55-3	Benz[a]anthracene
U094	57-97-6	Benz[a]anthracene, 7,12-dimethyl-
U012	62-53-3	Benzenamine (I,T)
U014	492-80-8	Benzenamine, 4,4'-carbonimidoylbis[N,N-dimethyl-
U049	3165-93-3	Benzenamine, 4-chloro-2-methyl-, hydrochloride
U093	60-11-7	Benzenamine, N,N-dimethyl-4-(phenylazo)-
U328	95-53-4	Benzenamine, 2-methyl-
U353	106-49-0	Benzenamine, 4-methyl-
U158	101-14-4	Benzenamine, 4,4'-methylenebis[2-chloro-
U222	636-21-5	Benzenamine, 2-methyl-, hydrochloride
U181	99-55-8	Benzenamine, 2-methyl-5-nitro-
U019	71-43-2	Benzene (I,T)
U038	510-15-6	Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy-, ethyl ester
U030	101-55-3	Benzene, 1-bromo-4-phenoxy-
U035	305-03-3	Benzenebutanoic acid, 4-[bis(2-chloroethyl)amino]-
U037	108-90-7	Benzene, chloro-
U221	25376-45-8	Benzenediamine, ar-methyl-

U028	117-81-7	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester
U069	84-74-2	1,2-Benzenedicarboxylic acid, dibutyl ester
U088	84-66-2	1,2-Benzenedicarboxylic acid, diethyl ester
U102	131-11-3	1,2-Benzenedicarboxylic acid, dimethyl ester
U107	117-84-0	1,2-Benzenedicarboxylic acid, dioctyl ester
U070	95-50-1	Benzene, 1,2-dichloro-
U071	541-73-1	Benzene, 1,3-dichloro-
U072	106-46-7	Benzene, 1,4-dichloro-
U060	72-54-8	Benzene, 1,1'-(2,2-dichloroethylidene)bis[4-chloro-
U017	98-87-3	Benzene, (dichloromethyl)-
U223	26471-62-5	Benzene, 1,3-diisocyanatomethyl- (R,T)
U239	1330-20-7	Benzene, dimethyl- (I)
U201	108-46-3	1,3-Benzenediol
U127	118-74-1	Benzene, hexachloro-
U056	110-82-7	Benzene, hexahydro- (I)
U220	108-88-3	Benzene, methyl-
U105	121-14-2	Benzene, 1-methyl-2,4-dinitro-
U106	606-20-2	Benzene, 2-methyl-1,3-dinitro-
U055	98-82-8	Benzene, (1-methylethyl)- (I)
U169	98-95-3	Benzene, nitro-
U183	608-93-5	Benzene, pentachloro-
U185	82-68-8	Benzene, pentachloronitro-
U020	98-09-9	Benzenesulfonic acid chloride (C,R)
U020	98-09-9	Benzenesulfonyl chloride (C,R)

U207	95-94-3	Benzene, 1,2,4,5-tetrachloro-
U061	50-29-3	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro-
U247	72-43-5	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-methoxy-
U023	98-07-7	Benzene, (trichloromethyl)-
U234	99-35-4	Benzene, 1,3,5-trinitro-
U021	92-87-5	Benzidine
U364	22961-82-6	1,3-Benzodioxol-4-ol, 2,2-dimethyl-
U278	22781-3	1,3-Benzodioxol-4-ol, 2,2-dimethyl-, methyl carbamate
U203	94-59-7	1,3-Benzodioxole, 5-(2-propenyl)-
U141	120-58-1	1,3-Benzodioxole, 5-(1-propenyl)-
U090	94-58-6	1,3-Benzodioxole, 5-propyl-
U367	1563-38-8	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl-
U064	189-55-9	Benzo[<i>rst</i>]pentaphene
U248	81-81-2 *	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenyl-butyl)-, and salts, when present at concentrations of 0.3 per cent or less
U022	50-32-8	Benzo[<i>a</i>]pyrene
U197	106-51-4	p-Benzoquinone
U023	98-07-7	Benzotrichloride (C,R,T)
U085	1464-53-5	2,2'-Bioxirane
U021	92-87-5	[1,1'-Biphenyl]-4,4'-diamine
U073	91-94-1	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dichloro-
U091	119-90-4	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethoxy-
U095	119-93-7	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl-
U225	75-25-2	Bromoform

U030	101-55-3	4-Bromophenyl phenyl ether
U128	87-68-3	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-
U172	924-16-3	1-Butanamine, N-butyl-N-nitroso-
U031	71-36-3	1-Butanol (I)
U159	78-93-3	2-Butanone (I,T)
U160	1338-23-4	-Butanone, peroxide (R,T)
U053	4170-30-3	2-Butenal
U074	764-41-0	2-Butene, 1,4-dichloro- (I,T)
U143	303-34-4	2-Butenoic acid, 2-methyl-, 7-[[2,3-dihydroxy2-(1-methoxyethyl)-3-methyl-1-oxobutoxy]methyl]-2,3,5,7a-tetrahydro-1H-pyrrolizin-1-yl ester, 1S-[1alpha(Z),7(2S*,3R*),7aalpha]]-
U031	71-36-3	n-Butyl alcohol (I)
U136	75-60-5	Cacodylic acid
U032	13765-19-0	Calcium chromate
U372	10605-21-7	Carbamic acid, 1H-benzimidazol-2-yl, methyl ester
U271	17804-35-2	Carbamic acid, [1-[(buthylamino)carbonyl]- 1H-benzimidazol-2-yl], methyl ester
U280	101-27-9	Carbamic acid, (3-chlorophenyl)-, 4-chloro-2-butynyl ester
U238	51-79-6	Carbamic acid, ethyl ester
U178	615-53-2	Carbamic acid, methylnitroso-, ethyl ester
U373	122-42-9	Carbamic acid, phenyl-, 1-methylethyl ester
U409	23564-05-8	Carbamic acid, [1,2-phenylenebis (iminocarbobothioyl)]bis-, dimethyl ester
U097	79-44-7	Carbamic chloride, dimethyl-
U114	111-54-6 *	Carbamodithioic acid, 1,2-ethanediybis-, salts and esters

U062	2303-16-4	Carbamothioic acid, bis(1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester
U389	2303-17-5	Carbamothioic acid, bis(1-methylethyl)-, S-(2,3,3-trichloro-2-propenyl) ester
U387	52888-80-9	Carbamothioic acid, dipropyl-, S-(phenylmethyl) ester
U279	63-25-2	Carbaryl
U372	10605-21-7	Carbendazim
U367	1563-38-8	Carbofuran phenol
U215	6533-73-9	Carbonic acid, dithallium(1+) salt
U033	353-50-4	Carbonic difluoride
U156	79-22-1	Carbonochloridic acid, methyl ester (I,T)
U033	353-50-4	Carbon oxyfluoride (R,T)
U211	56-23-5	Carbon tetrachloride
U034	75-87-6	Chloral
U035	305-03-3	Chlorambucil
U036	57-74-9	Chlordane, alpha and gamma isomers
U026	494-03-1	Chlornaphazin
U037	108-90-7	Chlorobenzene
U038	510-15-6	Chlorobenzilate
U039	59-50-7	p-Chloro-m-cresol
U042	110-75-8	2-Chloroethyl vinyl ether
U044	67-66-3	Chloroform
U046	107-30-2	Chloromethyl methyl ether
U047	91-58-7	beta-Chloronaphthalene

U048	95-57-8	o-Chlorophenol
U049	3165-93-3	4-Chloro-o-toluidine, hydrochloride
U032	13765-19-0	Chromic acid H ₂ CrO ₄ , calcium salt
U050	218-01-9	Chrysene
U051	-----	Creosote
U052	1319-77-3	Cresol (Cresylic acid)
U053	4170-30-3	Crotonaldehyde
U055	98-82-8	Cumene (I)
U246	506-68-3	Cyanogen bromide (CN)Br
U197	106-51-4	2,5-Cyclohexadiene-1,4-dione
U056	110-82-7	Cyclohexane (I)
U129	58-89-9	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1alpha,2alpha,3beta,4alpha,5alpha,6beta)-
U057	108-94-1	Cyclohexanone (I)
U130	77-47-4	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-
U058	50-18-0	Cyclophosphamide
U240	94-75-7 *	2,4-D, salts and esters
U059	20830-81-3	Daunomycin
U060	72-54-8	DDD
U061	50-29-3	DDT
U062	2303-16-4	Diallate
U063	53-70-3	Dibenz[a,h]anthracene
U064	189-55-9	Dibenzo[a,i]pyrene
U066	96-12-8	1,2-Dibromo-3-chloropropane

U069	84-74-2	Dibutyl phthalate
U070	95-50-1	o-Dichlorobenzene
U071	541-73-1	m-Dichlorobenzene
U072	106-46-7	p-Dichlorobenzene
U073	91-94-1	3,3'-Dichlorobenzidine
U074	764-41-0	1,4-Dichloro-2-butene (I,T)
U075	75-71-8	Dichlorodifluoromethane
U078	75-35-4	1,1-Dichloroethylene
U079	156-60-5	1,2-Dichloroethylene
U025	111-44-4	Dichloroethyl ether
U027	108-60-1	Dichloroisopropyl ether
U024	111-91-1	Dichloromethoxy ethane
U081	120-83-2	2,4-Dichlorophenol
U082	87-65-0	2,6-Dichlorophenol
U084	542-75-6	1,3-Dichloropropene
U085	1464-53-5	1,2:3,4-Diepoxybutane (I,T)
U395	5952-26-1	Diethylene glycol, dicarbamate
U108	123-91-1	1,4-Diethyleneoxide
U028	117-81-7	Diethylhexyl phthalate
U086	1615-80-1	N,N'-Diethylhydrazine
U087	3288-58-2	O,O-Diethyl S-methyl dithiophosphate
U088	84-66-2	Diethyl phthalate
U089	56-53-1	Diethylstilbesterol
U090	94-58-6	Dihydrosafrole

U091	119-90-4	3,3'-Dimethoxybenzidine
U092	124-40-3	Dimethylamine (I)
U093	60-11-7	p-Dimethylaminoazobenzene
U094	57-97-6	7,12-Dimethylbenz[a]anthracene
U095	119-93-7	3,31-Dimethylbenzidine
U096	80-15-9	alpha,alpha-Dimethylbenzylhydroperoxide (R)
U097	79-44-7	Dimethylcarbamoyl chloride
U098	57-14-7	1,1-Dimethylhydrazine
U099	540-73-8	1,2-Dimethylhydrazine
U101	105-67-9	2,4-Dimethylphenol
U102	131-11-3	Dimethyl phthalate
U103	77-78-1	Dimethyl sulfate
U105	121-14-2	2,4-Dinitrotoluene
U106	606-20-2	2,6-Dinitrotoluene
U107	117-84-0	Di-n-octyl phthalate
U108	123-91-1	1,4-Dioxane
U109	122-66-7	1,2-Diphenylhydrazine
U110	142-84-7	Dipropylamine (I)
U111	621-64-7	Di-n-propylnitrosamine
U041	106-89-8	Epichlorohydrin
U001	75-07-0	Ethanal (I)
U174	55-18-5	Ethanamine, N-ethyl-N-nitroso-
U404	121-44-8	Ethanamine, N, N-diethyl-

U155	91-80-5	1,2-Ethanediamine, N,N-dimethyl-N'-2-pyridinyl-N'-(2-thienylmethyl)-
U067	106-93-4	Ethane, 1,2-dibromo-
U076	75-34-3	Ethane, 1,1-dichloro-
U077	107-06-2	Ethane, 1,2-dichloro-
U131	67-72-1	Ethane, hexachloro-
U024	111-91-1	Ethane, 1,1'-[methylenebis(oxy)]bis[2-chloro-
U117	60-29-7	Ethane, 1,1'-oxybis-(I)
U025	111-44-4	Ethane, 1,1'-oxybis[2-chloro-
U184	76-01-7	Ethane, pentachloro-
U208	630-20-6	Ethane, 1,1,1,2-tetrachloro-
U209	79-34-5	Ethane, 1,1,2,2-tetrachloro-
U226	71-55-6	Ethane, 1,1,1-trichloro-
U227	79-00-5	Ethane, 1,1,2-trichloro-
U218	62-55-5	Ethanethioamide
U410	59669-26-0	Ethanimidothioic acid, N,N'-[thiobis [(methylimino)carbonyloxy]]bis-, dimethyl ester
U394	30558-43-1	Ethanimidothioic acid, 2-(dimethylamino)-hydroxy-2-oxo-, methyl ester
U359	110-80-5	Ethanol, 2-ethoxy-
U173	1116-54-7	Ethanol, 2,2'-(nitrosoimino)bis-
U395	5952-26-1	Ethanol, 2,2'-oxybis-, dicarbamate
U004	98-86-2	Ethanone, 1-phenyl-
U043	75-01-4	Ethene, chloro-
U042	110-75-8	Ethene, (2-chloroethoxy)-

U078	75-35-4	Ethene, 1,1-dichloro-
U079	156-60-5	Ethene, 1,2-dichloro-, (E)-
U210	127-18-4	Ethene, tetrachloro-
U228	79-01-6	Ethene, trichloro-
U112	141-78-6	Ethyl acetate (I)
U113	140-88-5	Ethyl acrylate (I)
U238	51-79-6	Ethyl carbamate (urethane)
U117	60-29-7	Ethyl ether (I)
U114	111-54-6 *	Ethylenebisdithiocarbamic acid, salts and esters
U067	106-93-4	Ethylene dibromide
U077	107-06-2	Ethylene dichloride
U359	110-80-5	Ethylene glycol monoethyl ether
U115	75-21-8	Ethylene oxide (I,T)
U116	96-45-7	Ethylenethiourea
U076	75-34-3	Ethylidene dichloride
U118	97-63-2	Ethyl methacrylate
U119	62-50-0	Ethyl methanesulfonate
U120	206-44-0	Fluoranthene
U122	50-00-0	Formaldehyde
U123	64-18-6	Formic acid (C,T)
U124	110-00-9	Furan (I)
U125	98-01-1	2-Furancarboxaldehyde (I)
U147	108-31-6	2,5-Furandione
U213	109-99-9	Furan, tetrahydro-(I)

U125	98-01-1	Furfural (I)
U124	110-00-9	Furfuran (I)
U206	18883-66-4	Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoureido)-, D
U206	18883-66-4	D-Glucose, 2-deoxy-2-[[methylnitrosoamino]-carbonyl]amino]-
U126	765-34-4	Glycidylaldehyde
U163	70-25-7	Guanidine, N-methyl-N'-nitro-N-nitroso-
U127	118-74-1	Hexachlorobenzene
U128	87-68-3	Hexachlorobutadiene
U130	77-47-4	Hexachlorocyclopentadiene
U131	67-72-1	Hexachloroethane
U132	70-30-4	Hexachlorophene
U243	1888-71-7	Hexachloropropene
U133	302-01-2	Hydrazine (R,T)
U086	1615-80-1	Hydrazine, 1,2-diethyl-
U098	57-14-7	Hydrazine, 1,1-dimethyl-
U099	540-73-8	Hydrazine, 1,2-dimethyl-
U109	122-66-7	Hydrazine, 1,2-diphenyl-
U134	7664-39-3	Hydrofluoric acid (C,T)
U134	7664-39-3	Hydrogen fluoride (C,T)
U135	7783-06-4	Hydrogen sulfide
U135	7783-06-4	Hydrogen sulfide H ₂ S
U096	80-15-9	Hydroperoxide, 1-methyl-1-phenylethyl- (R)
U116	96-45-7	2-Imidazolidinethione

U137	193-39-5	Indeno[1,2,3-cd]pyrene
U190	85-44-9	1,3-Isobenzofurandione
U140	78-83-1	Isobutyl alcohol (I,T)
U141	120-58-1	Isosafrole
U142	143-50-0	Kepone
U143	303-34-4	Lasiocarpine
U144	301-04-2	Lead acetate
U146	1335-32-6	Lead, bis(acetato-O)tetrahydroxytri-
U145	7446-27-7	Lead phosphate
U146	1335-32-6	Lead subacetate
U129	58-89-9	Lindane
U163	70-25-7	MNNG
U147	108-31-6	Maleic anhydride
U148	123-33-1	Maleic hydrazide
U149	109-77-3	Malononitrile
U150	148-82-3	Melphalan
U151	7439-97-6	Mercury
U152	126-98-7	Methacrylonitrile (I, T)
U092	124-40-3	Methanamine, N-methyl- (I)
U029	74-83-9	Methane, bromo-
U045	74-87-3	Methane, chloro- (I, T)
U046	107-30-2	Methane, chloromethoxy-
U068	74-95-3	Methane, dibromo-
U080	75-09-2	Methane, dichloro-

U075	75-71-8	Methane, dichlorodifluoro-
U138	74-88-4	Methane, iodo-
U211	56-23-5	Methane, tetrachloro-
U225	75-25-2	Methane, tribromo-
U044	67-66-3	Methane, trichloro-
U121	75-69-4	Methane, trichlorofluoro-
U119	62-50-0	Methanesulfonic acid, ethyl ester
U153	74-93-1	Methanethiol (I, T)
U036	57-74-9	4,7-Methano-1H-indene,1,2,4,5,6,7,8,8-octachloro2,3,3a,4,7,7a-hexahydro-
U154	67-56-1	Methanol (I)
U155	91-80-5	Methapyrilene
U142	143-50-0	1,3,4-Metheno-2H-cyclobuta[cd]pentalen-2-one, 1,1a,3,3a,4,5,5,5a,5b,6-decachlorooctahydro-
U247	72-43-5	Methoxychlor
U154	67-56-1	Methyl alcohol (I)
U029	74-83-9	Methyl bromide
U186	504-60-9	1-Methylbutadiene (I)
U045	74-87-3	Methyl chloride (I,T)
U156	79-22-1	Methyl chlorocarbonate (I,T)
U226	71-55-6	Methyl chloroform
U157	56-49-5	3-Methylcholanthrene
U158	101-14-4	4,4'-Methylenebis(2-chloroaniline)
U068	74-95-3	Methylene bromide

U080	75-09-2	Methylene chloride
U159	78-93-3	Methyl ethyl ketone (MEK) (I,T)
U160	1338-23-4	Methyl ethyl ketone peroxide (R,T)
U138	74-88-4	Methyl iodide
U161	108-10-1	Methyl isobutyl ketone (I)
U162	80-62-6	Methyl methacrylate (I,T)
U161	108-10-1	4-Methyl-2-pentanone (I)
U164	56-04-2	Methylthiouracil
U101	50-07-7	Mitomycin C
U059	20830-81-3	5,12-Naphthacenedione, -acetyl-10- [(3-amino-2,3,6-trideoxy)-alpha-L-lyxo-hexopyranosyl)oxy]- 7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-, (8S-cis)-
U167	134-32-7	1-Naphthalenamine
U168	91-59-8	2-Naphthalenamine
U026	494-03-1	Naphthalenamine, N,N'-bis(2-chloroethyl)-
U165	91-20-3	Naphthalene
U047	91-58-7	Naphthalene, 2-chloro-
U166	130-15-4	1,4-Naphthalenedione
U236	72-57-1	2,7-Naphthalenedisulfonic acid, 3,3'-[(3,3'-dimethyl[1,1'-biphenyl]-4,4'-diyl)bis(azo)bis [5-amino-4-hydroxy]-, tetrasodium salt
U279	63-25-2	1-Naphthalenol, methylcarbamate
U166	130-15-4	1,4-Naphthoquinone
U167	134-32-7	alpha-Naphthylamine
U168	91-59-8	beta-Naphthylamine

U217	10102-45-1	Nitric acid, thallium(1+) salt
U169	98-95-3	Nitrobenzene (I,T)
U170	100-02-7	p-Nitrophenol
U171	79-46-9	2-Nitropropane (I,T)
U172	924-16-3	N-Nitrosodi-n-butylamine
U173	1116-54-7	N-Nitrosodiethanolamine
U174	55-18-5	N-Nitrosodiethylamine
U176	759-73-9	N-Nitroso-N-ethylurea
U177	684-93-5	N-Nitroso-N-methylurea
U178	615-53-2	N-Nitroso-N-methylurethane
U179	100-75-4	N-Nitrosopiperidine
U180	930-55-2	N-Nitrosopyrrolidine
U181	99-55-8	5-Nitro-o-toluidine
U193	1120-71-4	1,2-Oxathiolane, 2,2-dioxide
U058	50-18-0	2H-1,3,2-Oxazaphosphorin-2-amine, N,N-bis(2-chloroethyl)tetrahydro-, 2-oxide
U115	75-21-8	Oxirane (I,T)
U126	765-34-4	Oxiranecarboxyaldehyde
U041	106-89-8	Oxirane, (chloromethyl)-
U182	123-63-7	Paraldehyde
U183	608-93-5	Pentachlorobenzene
U184	76-01-7	Pentachloroethane
U185	82-68-8	Pentachloronitrobenzene (PCNB)
See F027	87-86-5	Pentachlorophenol

U161	108-10-1	Pentanol, 4-methyl-
U186	504-60-9	1,3-Pentadiene (I)
U187	62-44-2	Phenacetin
U188	108-95-2	Phenol
U048	95-57-8	Phenol, 2-chloro-
U039	59-50-7	Phenol, 4-chloro-3-methyl-
U081	120-83-2	Phenol, 2,4-dichloro-
U082	87-65-0	Phenol, 2,6-dichloro-
U089	56-53-1	Phenol, 4,4'-(1,2-diethyl-1,2-ethenediyl)bis-, (E)-
U101	105-67-9	Phenol, 2,4-dimethyl-
U052	1319-77-3	Phenol, methyl-
U132	70-30-4	Phenol, 2,2'-methylenebis[3,4,6-trichloro-
U411	114-26-1	Phenol, 2-(1-methylethoxy)-, methylcarbamate
U170	100-02-7	Phenol, 4-nitro-
See F027	87-86-5	Phenol, pentachloro-
See F027	58-90-2	Phenol, 2,3,4,6-tetrachloro-
See F027	95-95-4	Phenol, 2,4,5-trichloro-
See F027	88-06-2	Phenol, 2,4,6-trichloro-
U150	148-82-3	L-Phenylalanine, 4-[bis(2-chloroethyl)amino]-
U145	7446-27-7	Phosphoric acid, lead(2+) salt (2:3)
U087	3288-58-2	Phosphorodithioic acid, O,O-diethyl S-methyl ester
U189	1314-80-3	Phosphorus sulfide (R)
U190	85-44-9	Phthalic anhydride
U191	109-06-8	2-Picoline

U179	100-75-4	Piperidine, 1-nitroso-
U192	23950-58-5	Pronamide
U194	107-10-8	1-Propanamine (I,T)
U111	621-64-7	1-Propanamine, N-nitroso-N-propyl-
U110	142-84-7	1-Propanamine, N-propyl- (I)
U066	96-12-8	Propane, 1,2-dibromo-3-chloro-
U083	78-87-5	Propane, 1,2-dichloro-
U171	79-46-9	Propane, 2-nitro- (I,T)
U027	108-60-1	Propane, 2,2'-oxybis[2-chloro-
U193	1120-71-4	1,3-Propane sultone
U149	109-77-3	Propanedinitrile
See F027	93-72-1	Propanoic acid, 2-(2,4,5-trichlorophenoxy)-
U235	126-72-7	1-Propanol, 2,3-dibromo-, phosphate (3:1)
U140	78-83-1	1-Propanol, 2-methyl- (I,T)
U002	67-64-1	2-Propanone (I)
U007	79-06-1	2-Propenamide
U084	542-75-6	1-Propene, 1,3-dichloro-
U243	1888-71-7	1-Propene, 1,1,2,3,3,3-hexachloro-
U009	107-13-1	2-Propenenitrile
U152	126-98-7	2-Propenenitrile, 2-methyl- (I,T)
U008	79-10-7	2-Propenoic acid (I)
U113	140-88-5	2-Propenoic acid, ethyl ester (I)
U118	97-63-2	2-Propenoic acid, 2-methyl-, ethyl ester
U162	80-62-6	2-Propenoic acid, 2-methyl-, methyl ester (I,T)

U373	122-42-9	Propham
U411	114-26-1	Propoxur
U194	107-10-8	n-Propylamine (I,T)
U083	78-87-5	Propylene dichloride
U387	52888-80-9	Prosulfocarb
U148	123-33-1	3,6-Pyridazinedione, 1,2-dihydro-
U196	110-86-1	Pyridine
U191	109-06-8	Pyridine, 2-methyl-
U237	66-75-1	2,4-(1H,3H)-Pyrimidinedione, 5-[bis(2-chloroethyl)amino]-
U164	56-04-2	4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-
U180	930-55-2	Pyrrolidine, 1-nitroso-
U200	50-55-5	Reserpine
U201	108-46-3	Resorcinol
U203	94-59-7	Safrole
U204	7783-00-8	Selenious acid
U204	7783-00-8	Selenium dioxide
U205	7488-56-4	Selenium sulfide
U205	7488-56-4	Selenium sulfide SeS ₂ (R,T)
U015	115-02-6	L-Serine, diazoacetate (ester)
See F027	93-72-1	Silvex (2,4,5-TP)
U206	18883-66-4	Streptozotocin
U103	77-78-1	Sulfuric acid, dimethyl ester
U189	1314-80-3	Sulfur phosphide (R)
See F027	93-76-5	2,4,5-T

U207	95-94-3	1,2,4,5-Tetrachlorobenzene
U208	630-20-6	1,1,1,2-Tetrachloroethane
U209	79-34-5	1,1,2,2-Tetrachloroethane
U210	127-18-4	Tetrachloroethylene
See F027	58-90-2	2,3,4,6-Tetrachlorophenol
U213	109-99-9	Tetrahydrofuran (I)
U214	563-68-8	Thallium(I) acetate
U215	6533-73-9	Thallium(I) carbonate
U216	7791-12-0	Thallium(I) chloride
U216	7791-12-0	Thallium chloride TlCl
U217	10102-45-1	Thallium(I) nitrate
U218	62-55-5	Thioacetamide
U410	59669-26-0	Thiodicarb
U153	74-93-1	Thiomethanol (I,T)
U244	137-26-8	Thioperoxydicarbonic diamide $[(H_2N)C(S)]_2S_2$, tetramethyl
U409	23564-05-8	Thiophanate-methyl
U219	62-56-6	Thiourea
U244	137-26-8	Thiram
U220	108-88-3	Toluene
U221	25376-45-8	Toluenediamine
U223	26471-62-5	Toluene diisocyanate (R,T)
U328	95-53-4	o-Toluidine
U353	106-49-0	p-Toluidine
U222	636-21-5	o-Toluidine hydrochloride

U389	2303-17-5	Triallate
U226	71-55-6	1,1,1-Trichloroethane
U011	61-82-5	1H-1,2,4-Triazol-3-amine
U227	79-00-5	1,1,2-Trichloroethane
U228	79-01-6	Trichloroethylene
U121	75-69-4	Trichloromonofluoromethane
See F027	95-95-4	2,4,5-Trichlorophenol
See F027	88-06-2	2,4,6-Trichlorophenol
U404	121-44-8	Triethylamine
U234	99-35-4	1,3,5-Trinitrobenzene (R,T)
U182	123-63-7	1,3,5-Trioxane, 2,4,6-trimethyl-
U235	126-72-7	Tris(2,3-dibromopropyl) phosphate
U236	72-57-1	Trypan blue
U237	66-75-1	Uracil mustard
U176	759-73-9	Urea, N-ethyl-N-nitroso-
U177	684-93-5	Urea, N-methyl-N-nitroso-
U043	75-01-4	Vinyl chloride
U248	81-81-2 *	Warfarin, and salts, when present at concentrations of 0.3 per cent or less
U239	1330-20-7	Xylene (I)
U200	50-55-5	Yohimban-16-carboxylic acid, 11,17-dimethoxy-18-[(3,4,5-trimethoxybenzoyl)oxy]-, methyl ester, (3beta,16beta,17alpha,18beta,20alpha)-
U249	1314-84-7	Zinc phosphide Zn_3P_2 , when present at concentrations of 10 per cent or less

* CAS Number given for parent compound only.
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(F) Numerical List

EPA Hazardous Waste #	CAS #	Substance
U001	75-07-0	Acetaldehyde (I)
U001	75-07-0	Ethanal (I)
U002	67-64-1	Acetone (I)
U002	67-64-1	2-Propanone (I)
U003	75-05-8	Acetonitrile (I,T)
U004	98-86-2	Acetophenone
U004	98-86-2	Ethanone, 1-phenyl-
U005	53-96-3	Acetamide, N-9H-fluoren-2-yl-
U005	53-96-3	2-Acetylaminofluorene
U006	75-36-5	Acetyl chloride (C,R,T)
U007	79-06-1	Acrylamide
U007	79-06-1	2-Propenamide
U008	79-10-7	Acrylic acid (I)
U008	79-10-7	2-Propenoic acid (I)
U009	107-13-1	Acrylonitrile
U009	107-13-1	2-Propenenitrile
U010	50-07-7	Azirino[2',3':3,4]pyrrolo[1,2-a]indole-4,7-dione, 6-amino-8-[[[(aminocarbonyl)oxy]methyl]- 1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5-methyl-, [1aS-(1aalpha, 8beta,8aalpha,8balpha)]-
U010	50-07-7	Mitomycin C

U011	61-82-5	Amitrole
U011	61-82-5	1H-1,2,4-Triazol-3-amine
U012	62-53-3	Aniline (I,T)
U012	62-53-3	Benzenamine (I,T)
U014	492-80-8	Auramine
U014	492-80-8	Benzenamine, 4,4'-carbonimidoylbis[N,N-dimethyl-
U015	115-02-6	Azaserine
U015	115-02-6	L-Serine, diazoacetate (ester)
U016	225-51-4	Benz[c]acridine
U017	98-87-3	Benzal chloride
U017	98-87-3	Benzene, (dichloromethyl)-
U018	56-55-3	Benz[a]anthracene
U019	71-43-2	Benzene (I,T)
U020	98-09-9	Benzenesulfonic acid chloride (C,R)
U020	98-09-9	Benzenesulfonyl chloride (C,R)
U021	92-87-5	Benzidine
U021	92-87-5	[1,1'-Biphenyl]-4,4'-diamine
U022	50-32-8	Benzo[a]pyrene
U023	98-07-7	Benzene, (trichloromethyl)-
U023	98-07-7	Benzotrichloride (C,R,T)
U024	111-91-1	Dichloromethoxy ethane
U024	111-91-1	Ethane, 1,1'-[methylenebis(oxy)]bis[2-chloro-
U025	111-44-4	Dichloroethyl ether
U025	111-44-4	Ethane, 1,1'-oxybis[2-chloro-

U026	494-03-1	Chlornaphazin
U026	494-03-1	Naphthalenamine, N,N'-bis(2-chloroethyl)-
U027	108-60-1	Dichloroisopropyl ether
U027	108-60-1	Propane, 2,2'-oxybis[2-chloro-
U028	117-81-7	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester
U028	117-81-7	Diethylhexyl phthalate
U029	74-83-9	Methane, bromo-
U029	74-83-9	Methyl bromide
U030	101-55-3	Benzene, 1-bromo-4-phenoxy-
U030	101-55-3	4-Bromophenyl phenyl ether
U031	71-36-3	1-Butanol (I)
U031	71-36-3	n-Butyl alcohol (I)
U032	13765-19-0	Calcium chromate
U032	13765-19-0	Chromic acid H ₂ CrO ₄ , calcium salt
U033	353-50-4	Carbonic difluoride
U033	353-50-4	Carbon oxyfluoride (R,T)
U034	75-87-6	Acetaldehyde, trichloro-
U034	75-87-6	Chloral
U035	305-03-3	Benzenebutanoic acid, 4-[bis(2-chloroethyl)amino]-
U035	305-03-3	Chlorambucil
U036	57-74-9	Chlordane, alpha and gamma isomers
U036	57-74-9	4,7-Methano-1H-indene,1,2,4,5,6,7,8,8-octachloro2,3,3a,4,7,7a-hexahydro-
U037	108-90-7	Benzene, chloro-

U037	108-90-7	Chlorobenzene
U038	510-15-6	Benzeneacetic acid, -chloro-alpha- (4-chlorophenyl)-alpha-hydroxy-, ethyl ester
U038	510-15-6	Chlorobenzilate
U039	59-50-7	p-Chloro-m-cresol
U039	59-50-7	Phenol, 4-chloro-3-methyl-
U041	106-89-8	Epichlorohydrin
U041	106-89-8	Oxirane, (chloromethyl)-
U042	110-75-8	2-Chloroethyl vinyl ether
U042	110-75-8	Ethene, (2-chloroethoxy)-
U043	75-01-4	Ethene, chloro-
U043	75-01-4	Vinyl chloride
U044	67-66-3	Chloroform
U044	67-66-3	Methane, trichloro-
U045	74-87-3	Methane, chloro- (I, T)
U045	74-87-3	Methyl chloride (I,T)
U046	107-30-2	Chloromethyl methyl ether
U046	107-30-2	Methane, chloromethoxy-
U047	91-58-7	beta-Chloronaphthalene
U047	91-58-7	Naphthalene, 2-chloro-
U048	95-57-8	o-Chlorophenol
U048	95-57-8	Phenol, 2-chloro-
U049	3165-93-3	Benzenamine, 4-chloro-2-methyl-, hydrochloride
U049	3165-93-3	4-Chloro-o-toluidine, hydrochloride

U050	218-01-9	Chrysene
U051	----	Creosote
U052	1319-77-3	Cresol (Cresylic acid)
U052	1319-77-3	Phenol, methyl-
U053	4170-30-3	2-Butenal
U053	4170-30-3	Crotonaldehyde
U055	98-82-8	Benzene, (1-methylethyl)- (I)
U055	98-82-8	Cumene (I)
U056	110-82-7	Benzene, hexahydro- (I)
U056	110-82-7	Cyclohexane (I)
U057	108-94-1	Cyclohexanone (I)
U058	50-18-0	Cyclophosphamide
U058	50-18-0	2H-1,3,2-Oxazaphosphorin-2-amine, N,N-bis(2-chloroethyl)tetrahydro-, 2-oxide
U059	20830-81-3	Daunomycin
U059	20830-81-3	5,12-Naphthacenedione, 8-acetyl-10-[(3-amino-2,3,6-trideoxy)-alpha-L-lyxo-hexopyranosyl oxy]- 7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-, (8S-cis)-
U060	72-54-8	Benzene, 1,1'-(2,2-dichloroethylidene)bis[4-chloro-
U060	72-54-8	DDD
U061	50-29-3	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro-
U061	50-29-3	DDT
U062	2303-16-4	Carbamothioic acid, bis(1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester
U062	2303-16-4	Diallate

U063	53-70-3	Dibenz[a,h]anthracene
U064	189-55-9	Benzo[rst]pentaphene
U064	189-55-9	Dibenzo[a,i]pyrene
U066	96-12-8	1,2-Dibromo-3-chloropropane
U066	96-12-8	Propane, 1,2-dibromo-3-chloro-
U067	106-93-4	Ethane, 1,2-dibromo-
U067	106-93-4	Ethylene dibromide
U068	74-95-3	Methane, dibromo-
U068	74-95-3	Methylene bromide
U069	84-74-2	1,2-Benzenedicarboxylic acid, dibutyl ester
U069	84-74-2	Dibutyl phthalate
U070	95-50-1	Benzene, 1,2-dichloro-
U070	95-50-1	o-Dichlorobenzene
U071	541-73-1	Benzene, 1,3-dichloro-
U071	541-73-1	m-Dichlorobenzene
U072	106-46-7	Benzene, 1,4-dichloro-
U072	106-46-7	p-Dichlorobenzene
U073	91-94-1	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dichloro-
U073	91-94-1	3,3'-Dichlorobenzidine
U074	764-41-0	2-Butene, 1,4-dichloro- (I,T)
U074	764-41-0	1,4-Dichloro-2-butene (I,T)
U075	75-71-8	Dichlorodifluoromethane
U075	75-71-8	Methane, dichlorodifluoro-
U076	75-34-3	Ethane, 1,1-dichloro-

U076	75-34-3	Ethylidene dichloride
U077	107-06-2	Ethane, 1,2-dichloro-
U077	107-06-2	Ethylene dichloride
U078	75-35-4	1,1-Dichloroethylene
U078	75-35-4	Ethene, 1,1-dichloro-
U079	156-60-5	1,2-Dichloroethylene
U079	156-60-5	Ethene, 1,2-dichloro-, (E)-
U080	75-09-2	Methane, dichloro-
U080	75-09-2	Methylene chloride
U081	120-83-2	2,4-Dichlorophenol
U081	120-83-2	Phenol, 2,4-dichloro-
U082	87-65-0	2,6-Dichlorophenol
U082	87-65-0	Phenol, 2,6-dichloro-
U083	78-87-5	Propane, 1,2-dichloro-
U083	78-87-5	Propylene dichloride
U084	542-75-6	1,3-Dichloropropene
U084	542-75-6	1-Propene, 1,3-dichloro
U085	1464-53-5	2,2'-Bioxirane
U085	1464-53-5	1,2:3,4-Diepoxybutane (I,T)
U086	1615-80-1	N,N'-Diethylhydrazine
U086	1615-80-1	Hydrazine, 1,2-diethyl-
U087	3288-58-2	O,O-Diethyl S-methyl dithiophosphate
U087	3288-58-2	Phosphorodithioic acid, O,O-diethyl S-methyl ester
U088	84-66-2	1,2-Benzenedicarboxylic acid, diethyl ester

U088	84-66-2	Diethyl phthalate
U089	56-53-1	Diethylstilbesterol
U089	56-53-1	Phenol, 4,4'-(1,2-diethyl-1,2-ethenediyl)bis-, (E)-
U090	94-58-6	1,3-Benzodioxole, 5-propyl-
U090	94-58-6	Dihydrosafrole
U091	119-90-4	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethoxy-
U091	119-90-4	3,3'-Dimethoxybenzidine
U092	124-40-3	Dimethylamine (I)
U092	124-40-3	Methanamine, N-methyl- (I)
U093	60-11-7	Benzenamine, N,N-dimethyl-4-(phenylazo)-
U093	60-11-7	p-Dimethylaminoazobenzene
U094	57-97-6	Benz[a]anthracene, 7,12-dimethyl-
U094	57-97-6	7,12-Dimethylbenz[a]anthracene
U095	119-93-7	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl-
U095	119-93-7	3,3'-Dimethylbenzidine
U096	80-15-9	alpha,alpha-Dimethylbenzylhydroperoxide (R)
U096	80-15-9	Hydroperoxide, 1-methyl-1-phenylethyl- (R)
U097	79-44-7	Carbamic chloride, dimethyl-
U097	79-44-7	Dimethylcarbamoyl chloride
U098	57-14-7	1,1-Dimethylhydrazine
U098	57-14-7	Hydrazine, 1,1-dimethyl-
U099	540-73-8	1,2-Dimethylhydrazine
U099	540-73-8	Hydrazine, 1,2-dimethyl-
U101	105-67-9	2,4-Dimethylphenol

U101	105-67-9	Phenol, 2,4-dimethyl-
U102	131-11-3	1,2-Benzenedicarboxylic acid, dimethyl ester
U102	131-11-3	Dimethyl phthalate
U103	77-78-1	Dimethyl sulfate
U103	77-78-1	Sulfuric acid, dimethyl ester
U105	121-14-2	Benzene, 1-methyl-2,4-dinitro-
U105	121-14-2	2,4-Dinitrotoluene
U106	606-20-2	Benzene, 2-methyl-1,3-dinitro-
U106	606-20-2	2,6-Dinitrotoluene
U107	117-84-0	1,2-Benzenedicarboxylic acid, dioctyl ester
U107	117-84-0	Di-n-octyl phthalate
U108	123-91-1	1,4-Diethyleneoxide
U108	123-91-1	1,4-Dioxane
U109	122-66-7	1,2-Diphenylhydrazine
U109	122-66-7	Hydrazine, 1,2-diphenyl-
U110	142-84-7	Dipropylamine (I)
U110	142-84-7	1-Propanamine, N-propyl- (I)
U111	621-64-7	Di-n-propylnitrosamine
U111	621-64-7	1-Propanamine, N-nitroso-N-propyl-
U112	141-78-6	Acetic acid ethyl ester (I)
U112	141-78-6	Ethyl acetate (I)
U113	140-88-5	Ethyl acrylate (I)
U113	140-88-5	2-Propenoic acid, ethyl ester (I)
U114	111-54-6 *	Carbamodithioic acid, 1,2-ethanediybis-, salts and esters

U114	111-54-6 *	Ethylenebisdithiocarbamic acid, salts and esters
U115	75-21-8	Ethylene oxide (I,T)
U115	75-21-8	Oxirane (I,T)
U116	96-45-7	Ethylenethiourea
U116	96-45-7	2-Imidazolidinethione
U117	60-29-7	Ethane, 1,1'-oxybis-(I)
U117	60-29-7	Ethyl ether (I)
U118	97-63-2	Ethyl methacrylate
U118	97-63-2	2-Propenoic acid, 2-methyl-, ethyl ester
U119	62-50-0	Ethyl methanesulfonate
U119	62-50-0	Methanesulfonic acid, ethyl ester
U120	206-44-0	Fluoranthene
U121	75-69-4	Methane, trichlorofluoro-
U121	75-69-4	Trichloromonofluoromethane
U122	50-00-0	Formaldehyde
U123	64-18-06	Formic acid (C,T)
U124	110-00-9	Furan (I)
U124	110-00-9	Furfuran (I)
U125	98-01-1	2-Furancarboxaldehyde (I)
U125	98-01-1	Furfural (I)
U126	765-34-4	Glycidylaldehyde
U126	765-34-4	Oxiranecarboxyaldehyde
U127	118-74-1	Benzene, hexachloro-
U127	118-74-1	Hexachlorobenzene

U128	87-68-3	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-
U128	87-68-3	Hexachlorobutadiene
U129	58-89-9	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1alpha,2alpha,3beta,4alpha,5alpha,6beta)-
U129	58-89-9	Lindane
U130	77-47-4	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-
U130	77-47-4	Hexachlorocyclopentadiene
U131	67-72-1	Ethane, hexachloro-
U131	67-72-1	Hexachloroethane
U132	70-30-4	Hexachlorophene
U132	70-30-4	Phenol, 2,2'-methylenebis[3,4,6-trichloro-
U133	302-01-2	Hydrazine (R,T)
U134	7664-39-3	Hydrofluoric acid (C,T)
U134	7664-39-3	Hydrogen fluoride (C,T)
U135	7783-06-4	Hydrogen sulfide
U135	7783-06-4	Hydrogen sulfide H ₂ S
U136	75-60-5	Arsinic acid, dimethyl-
U136	75-60-5	Cacodylic acid
U137	193-39-5	Indeno[1,2,3-cd]pyrene
U138	74-88-4	Methane, iodo-
U138	74-88-4	Methyl iodide
U140	78-83-1	Isobutyl alcohol (I,T)
U140	78-83-1	1-Propanol, 2-methyl- (I,T)
U141	120-58-1	1,3-Benzodioxole, 5-(1-propenyl)-

U141	120-58-1	Isosafrole
U142	143-50-0	Kepone
U142	143-50-0	1,3,4-Metheno-2H-cyclobuta[cd]pentalen-2-one, 1,1a,3,3a,4,5,5,5a,5b,6-decachlorooctahydro-
U143	303-34-4	2-Butenoic acid, -methyl-,7-[[[2,3-dihydroxy-2- (1-methoxyethyl)-3-methyl-1-oxobutoxy]methyl]-2,3,5,7atetrahydro-1H-pyrrolizin-1-yl ester, 1S-[1alpha(Z),7(2S*,3R*),7alpha]]-
U143	303-34-4	Lasiocarpine
U144	301-04-2	Acetic acid, lead(2+) salt
U144	301-04-2	Lead acetate
U145	7446-27-7	Lead phosphate
U145	7446-27-7	Phosphoric acid, lead(2+) salt (2:3)
U146	1335-32-6	Lead, bis(acetato-O)tetrahydroxytri-
U146	1335-32-6	Lead subacetate
U147	108-31-6	2,5-Furandione
U147	108-31-6	Maleic anhydride
U148	123-33-1	Maleic hydrazide
U148	123-33-1	3,6-Pyridazinedione, 1,2-dihydro-
U149	109-77-3	Malononitrile
U149	109-77-3	Propanedinitrile
U150	148-82-3	Melphalan
U150	148-82-3	L-Phenylalanine, 4-[bis(2-chloroethyl)amino]-
U151	7439-97-6	Mercury
U152	126-98-7	Methacrylonitrile (I, T)

U152	126-98-7	2-Propenenitrile, 2-methyl- (I,T)
U153	74-93-1	Methanethiol (I, T)
U153	74-93-1	Thiomethanol (I,T)
U154	67-56-1	Methanol (I)
U154	67-56-1	Methyl alcohol (I)
U155	91-80-5	1,2-Ethanediamine, N,N-dimethyl-N'-2-pyridinyl-N'-(2-thienylmethyl)-
U155	91-80-5	Methapyrilene
U156	79-22-1	Carbonochloridic acid, methyl ester (I,T)
U156	79-22-1	Methyl chlorocarbonate (I,T)
U157	56-49-5	Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-
U157	56-49-5	3-Methylcholanthrene
U158	101-14-4	Benzenamine, 4,4'-methylenebis[2-chloro-
U158	101-14-4	4,4'-Methylenebis(2-chloroaniline)
U159	78-93-3	2-Butanone (I,T)
U159	78-93-3	Methyl ethyl ketone (MEK) (I,T)
U160	1338-23-4	2-Butanone, peroxide (R,T)
U160	1338-23-4	Methyl ethyl ketone peroxide (R,T)
U161	108-10-1	Methyl isobutyl ketone (I)
U161	108-10-1	4-Methyl-2-pentanone (I)
U161	108-10-1	Pentanol, 4-methyl-
U162	80-62-6	Methyl methacrylate (I,T)
U162	80-62-6	2-Propenoic acid, 2-methyl-, methyl ester (I,T)
U163	70-25-7	Guanidine, N-methyl-N'-nitro-N-nitroso-

U163	70-25-7	MNNG
U164	56-04-2	Methylthiouracil
U164	56-04-2	4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-
U165	91-20-3	Naphthalene
U166	130-15-4	1,4-Naphthalenedione
U166	130-15-4	1,4-Naphthoquinone
U167	134-32-7	1-Naphthalenamine
U167	134-32-7	alpha-Naphthylamine
U168	91-59-8	2-Naphthalenamine
U168	91-59-8	beta-Naphthylamine
U169	98-95-3	Benzene, nitro-
U169	98-95-3	Nitrobenzene (I,T)
U170	100-02-7	p-Nitrophenol
U170	100-02-7	Phenol, 4-nitro-
U171	79-46-9	2-Nitropropane (I,T)
U171	79-46-9	Propane, 2-nitro- (I,T)
U172	924-16-3	1-Butanamine, N-butyl-N-nitroso-
U172	924-16-3	N-Nitrosodi-n-butylamine
U173	1116-54-7	Ethanol, 2,2'-(nitrosoimino)bis-
U173	1116-54-7	N-Nitrosodiethanolamine
U174	55-18-5	Ethanamine, N-ethyl-N-nitroso-
U174	55-18-5	N-Nitrosodiethylamine
U176	759-73-9	N-Nitroso-N-ethylurea
U176	759-73-9	Urea, N-ethyl-N-nitroso-

U177	684-93-5	N-Nitroso-N-methylurea
U177	684-93-5	Urea, N-methyl-N-nitroso-
U178	615-53-2	Carbamic acid, methylnitroso-, ethyl ester
U178	615-53-2	N-Nitroso-N-methylurethane
U179	100-75-4	N-Nitrosopiperidine
U179	100-75-4	Piperidine, 1-nitroso-
U180	930-55-2	N-Nitrosopyrrolidine
U180	930-55-2	Pyrrolidine, 1-nitroso-
U181	99-55-8	Benzenamine, 2-methyl-5-nitro-
U181	99-55-8	5-Nitro-o-toluidine
U182	123-63-7	Paraldehyde
U182	123-63-7	1,3,5-Trioxane, 2,4,6-trimethyl-
U183	608-93-5	Benzene, pentachloro-
U183	608-93-5	Pentachlorobenzene
U184	76-01-7	Ethane, pentachloro-
U184	76-01-7	Pentachloroethane
U185	82-68-8	Benzene, pentachloronitro-
U185	82-68-8	Pentachloronitrobenzene (PCNB)
U186	504-60-9	1-Methylbutadiene (I)
U186	504-60-9	1,3-Pentadiene (I)
U187	62-44-2	Acetamide, N-(4-ethoxyphenyl)-
U187	62-44-2	Phenacetin
U188	108-95-2	Phenol
U189	1314-80-3	Phosphorus sulfide (R)

U189	1314-80-3	Sulfur phosphide (R)
U190	85-44-9	1,3-Isobenzofurandione
U190	85-44-9	Phthalic anhydride
U191	109-06-8	2-Picoline
U191	109-06-8	Pyridine, 2-methyl-
U192	23950-58-5	Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-
U192	23950-58-5	Pronamide
U193	1120-71-4	1,2-Oxathiolane, 2,2-dioxide
U193	1120-71-4	1,3-Propane sultone
U194	107-10-8	1-Propanamine (I,T)
U194	107-10-8	n-Propylamine (I,T)
U196	110-86-1	Pyridine
U197	106-51-4	p-Benzoquinone
U197	106-51-4	2,5-Cyclohexadiene-1,4-dione
U200	50-55-5	Reserpine
U200	50-55-5	Yohimban-16-carboxylic acid, 11,17-dimethoxy-18-[(3,4,5-trimethoxybenzoyl)oxy]-, methyl ester, (3beta,16beta,17alpha,18beta,20alpha)-
U201	108-46-3	1,3-Benzenediol
U201	108-46-3	Resorcinol
U203	94-59-7	1,3-Benzodioxole, 5-(2-propenyl)-
U203	94-59-7	Safrole
U204	7783-00-8	Selenious acid
U204	7783-00-8	Selenium dioxide

U205	7488-56-4	Selenium sulfide
U205	7488-56-4	Selenium sulfide SeS_2 (R,T)
U206	18883-66-4	Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoureido)-, D-
U206	18883-66-4	D-Glucose, 2-deoxy-2-[[[(methylnitrosoamino)-carbonyl]amino]-
U206	18883-66-4	Streptozotocin
U207	95-94-3	Benzene, 1,2,4,5-tetrachloro-
U207	95-94-3	1,2,4,5-Tetrachlorobenzene
U208	630-20-6	Ethane, 1,1,1,2-tetrachloro-
U208	630-20-6	1,1,1,2-Tetrachloroethane
U209	79-34-5	Ethane, 1,1,2,2-tetrachloro-
U209	79-34-5	1,1,2,2-Tetrachloroethane
U210	127-18-4	Ethene, tetrachloro-
U210	127-18-4	Tetrachloroethylene
U211	56-23-5	Carbon tetrachloride
U211	56-23-5	Methane, tetrachloro-
U213	109-99-9	Furan, tetrahydro-(I)
U213	109-99-9	Tetrahydrofuran (I)
U214	563-68-8	Acetic acid, thallium(1+) salt
U214	563-68-8	Thallium(I) acetate
U215	6533-73-9	Carbonic acid, dithallium(1+) salt
U215	6533-73-9	Thallium(I) carbonate
U216	7791-12-0	Thallium(I) chloride
U216	7791-12-0	Thallium chloride TlCl

U217	10102-45-1	Nitric acid, thallium(1+) salt
U217	10102-45-1	Thallium(I) nitrate
U218	62-55-5	Ethanethioamide
U218	62-55-5	Thioacetamide
U219	62-56-6	Thiourea
U220	108-88-3	Benzene, methyl-
U220	108-88-3	Toluene
U221	25376-45-8	Benzenediamine, ar-methyl-
U221	25376-45-8	Toluenediamine
U222	636-21-5	Benzenamine, 2-methyl-, hydrochloride
U222	636-21-5	o-Toluidine hydrochloride
U223	26471-62-5	Benzene, 1,3-diisocyanatomethyl- (R,T)
U223	26471-62-5	Toluene diisocyanate (R,T)
U225	75-25-2	Bromoform
U225	75-25-2	Methane, tribromo-
U226	71-55-6	Ethane, 1,1,1-trichloro-
U226	71-55-6	Methyl chloroform
U226	71-55-6	1,1,1-Trichloroethane
U227	79-00-5	Ethane, 1,1,2-trichloro-
U227	79-00-5	1,1,2-Trichloroethane
U228	79-01-6	Ethene, trichloro-
U228	79-01-6	Trichloroethylene
U234	99-35-4	Benzene, 1,3,5-trinitro-
U234	99-35-4	1,3,5-Trinitrobenzene (R,T)

U235	126-72-7	1-Propanol, 2,3-dibromo-, phosphate (3:1)
U235	126-72-7	Tris(2,3-dibromopropyl) phosphate
U236	72-57-1	2,7-Naphthalenedisulfonic acid, 3,3'-[(3,3'-dimethyl[1,1'-biphenyl]-4,4'-diyl)bis(azo)bis[5-amino-4-hydroxy]-, tetrasodium salt
U236	72-57-1	Trypan blue
U237	66-75-1	2,4-(1H,3H)-Pyrimidinedione, 5-[bis(2-chloroethyl)amino]-
U237	66-75-1	Uracil mustard
U238	51-79-6	Carbamic acid, ethyl ester
U238	51-79-6	Ethyl carbamate (urethane)
U239	1330-20-7	Benzene, dimethyl- (I)
U239	1330-20-7	Xylene (I)
U240	94-75-7 *	Acetic acid, (2,4-dichlorophenoxy)-, salts and esters
U240	94-75-7 *	2,4-D, salts and esters
U243	1888-71-7	Hexachloropropene
U243	1888-71-7	1-Propene, 1,1,2,3,3,3-hexachloro-
U244	137-26-8	Thioperoxydicarbonic diamide [(H ₂ N)C(S)] ₂ S ₂ , tetramethyl-
U244	137-26-8	Thiram
U246	506-68-3	Cyanogen bromide (CN)Br
U247	72-43-5	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-methoxy-
U247	72-43-5	Methoxychlor
U248	81-81-2 *	2H-1-Benzopyran-2-one,4-hydroxy-3- (3-oxo-1-phenyl-butyl)-, and salts, when present at concentrations of 0.3 per cent or less
U248	81-81-2 *	Warfarin, and salts, when present at concentrations of 0.3 per cent or less

U249	1314-84-7	Zinc phosphide Zn_3P_2 , when present at concentrations of 10 per cent or less
U271	17804-35-2	Benomyl
U271	17804-35-2	Carbamic acid, [1-[(buthylamino)carbonyl]- 1H-benzimidazol-2-yl], methyl ester
U278	22781-23-3	Bendiocarb
U278	22781-23-3	1,3-Benzodioxol-4-ol, 2,2-dimethyl-, methyl carbamate
U279	63-25-2	Carbaryl
U279	63-25-2	1-Naphthalenol, methylcarbamate
U280	101-27-9	Barban
U280	101-27-9	Carbamic acid, (3-chlorophenyl)-, 4-chloro-2-butynyl ester
U328	95-53-4	Benzenamine, 2-methyl-
U328	95-53-4	o-Toluidine
U353	106-49-0	Benzenamine, 4-methyl-
U353	106-49-0	p-Toluidine
U359	110-80-5	Ethanol, 2-ethoxy-
U359	110-80-5	Ethylene glycol monoethyl ether
U364	22961-82-6	Bendiocarb phenol
U364	22961-82-6	1,3-Benzodioxol-4-ol, 2,2-dimethyl-
U367	1563-38-8	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl-
U367	1563-38-8	Carbofuran phenol
U372	10605-21-7	Carbamic acid, 1H-benzimidazol-2-yl, methyl ester
U372	10605-21-7	Carbendazim
U373	122-42-9	Carbamic acid, phenyl-, 1-methylethyl ester

U373	122-42-9	Propham
U387	52888-80-9	Carbamothioic acid, dipropyl-, S-(phenylmethyl) ester
U387	52888-80-9	Prosulfocarb
U389	2303-17-5	Carbamothioic acid, bis(1-methylethyl)-, S-(2,3,3-trichloro-2-propenyl) ester
U389	2303-17-5	Triallate
U394	30558-43-1	A2213
U394	30558-43-1	Ethanimidothioic acid, 2-(dimethylamino)-N-hydroxy-2-oxo-, methyl ester
U395	5952-26-1	Diethylene glycol, dicarbamate
U395	5952-26-1	Ethanol, 2,2'-oxybis-, dicarbamate
U404	121-44-8	Ethanamine, N, N-diethyl-
U404	121-44-8	Triethylamine
U409	23564-05-8	Carbamic acid, [1,2-phenylenebis (iminocarbonylthioyl)]bis-, dimethyl ester
U409	23564-05-8	Thiophanate-methyl
U410	59669-26-0	Ethanimidothioic acid, N,N'-[thiobis [(methylimino)carbonyloxy]]bis-, dimethyl ester
U410	59669-26-0	Thiodicarb
U411	114-26-1	Phenol, 2-(1-methylethoxy)-, methylcarbamate
U411	114-26-1	Propoxur
See F027	93-76-5	Acetic acid, (2,4,5-trichlorophenoxy)-
See F027	87-86-5	Pentachlorophenol
See F027	87-86-5	Phenol, pentachloro-
See F027	58-90-2	Phenol, 2,3,4,6-tetrachloro-

See F027	95-95-4	Phenol, 2,4,5-trichloro-
See F027	88-06-2	Phenol, 2,4,6-trichloro-
See F027	93-72-1	Propanoic acid, 2-(2,4,5-trichlorophenoxy)-
See F027	93-72-1	Silvex (2,4,5-TP)
See F027	93-76-5	2,4,5-T
See F027	58-90-2	2,3,4,6-Tetrachlorophenol
See F027	95-95-4	2,4,5-Trichlorophenol
See F027	88-06-2	2,4,6-Trichlorophenol
* CAS Number given for parent compound only.		

~~(G) As used in this rule, the phrase "commercial chemical products or manufacturing chemical intermediates having the generic name listed in ..." refers to a chemical substance which is manufactured or formulated for commercial or manufacturing use which consists of the commercially pure grade of the chemical, any technical grades of the chemical that are produced or marketed, and all formulations in which the chemical is the sole active ingredient. That term does not refer to a material, such as a manufacturing process waste, that contains any of the substances listed in paragraph (E) or (F) of this rule. Where a manufacturing process waste is deemed to be a hazardous waste because such waste contains a substance listed in paragraph (E) or (F) of this rule, such waste will be listed in either rule 3745-51-31 or 3745-51-32 of the Administrative Code, or will be identified as a hazardous waste by the characteristics identified in rules 3745-51-20 to 3745-51-24 of the Administrative Code.~~

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Five Year Review (FYR) Dates: Exempt

CERTIFIED ELECTRONICALLY

Certification

09/21/2020

Date

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12/02/1981, 01/07/1983, 05/29/1985 (Emer.),
08/29/1985, 01/30/1986, 09/22/1986, 11/13/1987,
12/08/1988, 12/30/1989, 06/29/1990, 02/11/1992,
02/14/1995, 09/02/1997, 12/07/2000, 12/07/2004,
09/05/2010, 03/17/2012, 10/31/2015

3745-51-35

Deletion of certain EPA hazardous waste numbers following equipment cleaning and replacement.

- (A) Wastes from wood preserving processes at plants that do not resume or initiate use of chlorophenolic preservatives will not meet the listing ~~definition~~description of F032 once the generator has met all of the requirements of paragraphs (B) and (C) of this rule. These wastes may, however, continue to meet another hazardous waste listing description or may exhibit one or more of the hazardous waste characteristics.
- (B) Generators ~~must~~shall either clean or replace all process equipment that may have come into contact with chlorophenolic formulations or constituents thereof, including, but not limited to, treatment cylinders, sumps, tanks, piping systems, drip pads, fork lifts, and trams, in a manner that minimizes or eliminates the escape of hazardous waste or constituents, leachate, contaminated drippage, or hazardous waste decomposition products to the ground water, surface water, or atmosphere.
- (1) Generators ~~must~~shall do one of the following:
- (a) Prepare and follow an equipment cleaning plan and clean equipment in accordance with this rule;~~;~~
 - (b) Prepare and follow an equipment replacement plan and replace equipment in accordance with this rule;~~;~~~~or~~
 - (c) Document cleaning and replacement in accordance with this rule, carried out after termination of use of chlorophenolic preservations.
- (2) Cleaning requirements.
- (a) Prepare and sign a written equipment cleaning plan that describes all of the following:
- (i) The equipment to be cleaned;~~;~~
 - (ii) How the equipment will be cleaned;~~;~~
 - (iii) The solvent to be used in cleaning;~~;~~
 - (iv) How solvent rinses will be tested;~~;~~~~and~~
 - (v) How cleaning residues will be disposed.

(b) Equipment ~~must~~shall be cleaned as follows:

- (i) Remove all visible residues from process equipment;~~and~~.
- (ii) Rinse process equipment with an appropriate solvent until dioxins and dibenzofurans are not detected in the final solvent rinse.

(c) Analytical requirements.

- (i) Rinses ~~must~~shall be tested by using an appropriate method.
- (ii) "Not detected" means at or below the lower method calibration limit (MCLs): The 2,3,7,8-TCDD-based MCL- 0.01 parts per trillion (ppt), sample weight of one thousand grams, IS spiking level of one ppt, final extraction volume of ten to fifty microliters. For other congeners- multiply the values by 1.0 for TCDF/PeCDD/PeCDF, by 2.5 for HxCDD/HxCDF, HpCDD/HpCDF, and by 5.0 for OCDD/OCDF.

(d) The generator ~~must~~shall manage all residues from the cleaning process as F032 waste.

(3) Replacement requirements.

(a) Prepare and sign a written equipment replacement plan that describes all of the following:

- (i) The equipment to be replaced;~~;~~
- (ii) How the equipment will be replaced;~~and~~.
- (iii) How the equipment will be disposed.

(b) The generator ~~must~~shall manage the discarded equipment as F032 waste.

- (4) Documentation requirements. Document that previous equipment cleaning ~~and/or~~ replacement was performed in accordance with this rule and occurred after cessation of use of chlorophenolic preservatives.
- (C) The generator ~~must~~shall maintain all of the following records documenting the cleaning and replacement as part of the facility's operating record:
- (1) The name and address of the facility;₂
 - (2) Formulations previously used and the date on which their use ceased in each process at the plant;₂
 - (3) Formulations currently used in each process at the plant;₂
 - (4) The equipment cleaning or replacement plan;₂
 - (5) The name and address of any persons who conducted the cleaning and replacement;₂
 - (6) The dates on which cleaning and replacement were accomplished;₂
 - (7) The dates of sampling and testing;₂
 - (8) A description of the sample handling and preparation techniques, including techniques used for extraction, containerization, preservation, and chain-of-custody of the samples;₂
 - (9) A description of the tests performed, the date the tests were performed, and the results of the tests;₂
 - (10) The name and model numbers of the ~~instrument(s)~~instruments used in performing the tests;₂
 - (11) ~~"QA/QC"~~Quality assurance/quality control (QA/QC) documentation; ~~and~~₂
 - (12) The following statement signed by the generator or his authorized representative:

"I certify under penalty of law that all process equipment required to be cleaned or replaced under rule 3745-51-35 of the Administrative Code was cleaned or replaced as represented in the equipment cleaning and replacement plan and accompanying documentation. I am aware that there are significant penalties for providing false information, including the possibility of fine or imprisonment."

~~[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."]~~

[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."]

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Five Year Review (FYR) Dates: Exempt

CERTIFIED ELECTRONICALLY

Certification

10/07/2015

Date

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Rule Amplifies: 3734.12
Prior Effective Dates: 09/02/1997, 12/07/2004, 02/16/2009

3745-51-39

Conditional exclusion for used, broken CRTs and processed CRT glass undergoing recycling.

Used, broken cathode ray tubes (CRTs) are not wastes if the CRTs meet the following conditions:

(A) Prior to processing. These materials are not wastes if the materials are destined for recycling and if the materials meet the following requirements:

(1) Storage. The broken CRTs shall be either:

(a) Stored in a building with a roof, floor, and walls.

(b) Placed in a container (i.e., a package or a vehicle) that is constructed, filled, and closed to minimize releases to the environment of CRT glass (including fine solid materials).

(2) Labeling. Each container in which the used, broken CRT is contained shall be labeled or marked clearly with one of the following phrases: "Used cathode ray tubes- contain leaded glass" or "Leaded glass from televisions or computers." The container also shall be labeled "Do not mix with other glass materials."

(3) Transportation. The used, broken CRTs shall be transported in a container that meets the requirements of paragraphs (A)(1)(b) and (A)(2) of this rule.

(4) Accumulating speculatively and use constituting disposal. The used, broken CRTs are subject to the limitations on being "accumulated speculatively" as provided in paragraph (C)(8) of rule 3745-51-01 of the Administrative Code. If the used, broken CRTs are used in a manner constituting disposal, the used, broken CRTs shall comply with the applicable requirements of rules 3745-266-20 to 3745-266-23 of the Administrative Code instead of this rule.

(5) Exports. In addition to the applicable conditions specified in paragraphs (A) (1) to (A)(4) of this rule, exporters of used, broken CRTs shall notify U.S. EPA of an intended export before the CRTs are scheduled to leave the United States, and shall comply with the notification requirements in 40 ~~CFR~~C.F.R. 261.39 (a)(5)(i) to (a)(5)(xi). ~~Notifications submitted by mail should be sent to "Office of Enforcement and Compliance Assurance, Mail Code 2254A, United States Environmental Protection Agency, 1200 Pennsylvania Avenue, N.W., Washington, DC," 20460. Hand-delivered notifications should be sent to "Office of Enforcement and Compliance Assurance, Office of Federal Activities, International Compliance Assurance Division, Mail Code 2254A, United States Environmental Protection Agency, Ariel Rios Bldg., Room 6144, 1200 Pennsylvania Ave., NW., Washington, DC." In both cases, the following~~

~~shall be prominently displayed on the front of the envelope: "Attention: Notification of Intent to Export CRTs."~~

[Comment: The exercise of foreign relations and international commerce powers is reserved to the federal government under the Constitution. These responsibilities are not delegable to the states. Therefore, the importation and exportation of hazardous waste into and out of the United States is solely regulated by the federal government.]

(B) Requirements for used CRT processing. Used, broken CRTs undergoing "CRT processing" as defined in rule 3745-50-10 of the Administrative Code are not wastes if such wastes meet the following requirements:

(1) Storage. Used, broken CRTs undergoing processing are subject to the requirement of paragraph (A)(4) of this rule.

(2) Processing.

(a) All activities specified in subparagraphs (b) and (c) of the definition of "CRT processing" in rule 3745-50-10 of the Administrative Code shall be performed within a building with a roof, floor, and walls.

(b) No activities may be performed that use temperatures high enough to volatilize lead from CRTs.

(C) Processed CRT glass sent to CRT glass making or lead smelting. Glass from used CRTs that is destined for recycling at a CRT glass manufacturer or a lead smelter after processing is not a waste unless such glass is "accumulated speculatively" as defined in paragraph (C)(8) of rule 3745-51-01 of the Administrative Code.

(D) Use constituting disposal. Glass from used CRTs that is used in a manner constituting disposal shall comply with rules 3745-266-20 to 3745-266-23 of the Administrative Code instead of this rule.

[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."]

Effective: 10/5/2020
Five Year Review (FYR) Dates: 7/13/2020 and Exempt

CERTIFIED ELECTRONICALLY

Certification

09/21/2020

Date

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Rule Amplifies: 3734.12
Prior Effective Dates: 09/05/2010, 03/17/2012, 02/12/2018

3745-51-40

Conditional exclusion for used, intact CRTs exported for recycling.

Used, intact cathode ray tubes (CRTs) exported for recycling are not wastes if ~~they~~such CRTs meet the notice and consent conditions of 40 CFR 261.39(a)(5), and if ~~they~~such CRTs are not "accumulated speculatively" as defined in paragraph (C)(8) of rule 3745-51-01 of the Administrative Code.

[Comment 1: The exercise of foreign relations and international commerce powers is reserved to the federal government under the Constitution. These responsibilities are not delegable to the states. Therefore, the importation and exportation of hazardous waste into and out of the ~~U.S.~~United States is solely regulated by the federal government.]

[Comment 2: 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."]

Effective: 2/12/2018
Five Year Review (FYR) Dates: 10/30/2017 and Exempt

CERTIFIED ELECTRONICALLY

Certification

01/10/2018

Date

Promulgated Under: 119.03
Statutory Authority: 3734.12
Rule Amplifies: 3734.12
Prior Effective Dates: 09/05/2010, 03/17/2012

3745-51-41

Notification and recordkeeping for used, intact CRTs exported for reuse.

Any person wanting to export used, intact cathode ray tubes (CRTs) to a foreign country shall comply with 40 CFR 261.41.

[Comment 1: Ohio EPA shall recognize the administrator's decisions under 40 CFR 261.41.]

[Comment 2: The exercise of foreign relations and international commerce powers is reserved to the federal government under the Constitution. These responsibilities are not delegable to the states. Therefore, the importation and exportation of hazardous waste into and out of the United States is solely regulated by the federal government.]

[Comment 3: 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."]

Replaces: 3745-51-41 rescinded
Effective: 2/12/2018
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CERTIFIED ELECTRONICALLY

Certification

01/10/2018

Date

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Rule Amplifies: 3734.12
Prior Effective Dates: 09/05/2010

3745-51-100

Financial assurance for seventy-two hour recyclers.

Owners or operators of facilities that enter recyclable materials into a recycling process within seventy-two hours after arrival at the facility, except as provided in paragraph (A)(2) of rule 3745-51-06 of the Administrative Code, may store recyclable materials in containers, tanks, or containment buildings without an Ohio hazardous waste permit, provided that the financial assurance requirements of this rule are met. All financial assurance documentation shall be approved by Ohio EPA prior to ~~storing~~storage of any material, and shall comply with this rule.

(A) The owner or operator shall have a detailed written estimate, in current dollars, of the cost of closing the facility in accordance with paragraphs (A) and (B) of rule 3745-66-11 and rule 3745-66-14 of the Administrative Code. The cost estimate:

- (1) Shall equal the cost of final closure at the point in the active life of the facility when the extent and manner of ~~its~~the facility's operation would make closure the most expensive.
- (2) Shall be based on the costs to the owner or operator of hiring a third party to close the facility. A third party is a party who is neither a parent nor a subsidiary of the owner or operator. (See the definition of "parent corporation" in rule 3745-66-41 of the Administrative Code.)
- (3) May not incorporate any salvage value that may be realized with the sale of recyclable materials, hazardous wastes, nonhazardous wastes, facility structures or equipment, or land or other asset associated with the facility.
- (4) May not incorporate a zero cost for recyclable materials, or hazardous wastes, or nonhazardous wastes that might have economic value.

(B) During the active life of the facility, the owner or operator shall adjust the closure cost estimate for inflation within sixty days prior to the anniversary date of the establishment of the financial instruments used to comply with rule 3745-66-43 of the Administrative Code. For owners or operators using the financial test, the cost estimate shall be updated for inflation within thirty days after the close of the firm's fiscal year and before, or in conjunction with, submittal of updated information to the director as specified in paragraph (E)(3) of rule 3745-66-43 of the Administrative Code. The adjustment may be made by recalculating the closure cost estimate in current dollars, or by using an inflation factor derived as specified in 40 CFR 265.142(b).

- (1) The first adjustment is made by multiplying the closure cost estimate by the inflation factor. The result is the adjusted closure cost estimate.

- (2) Subsequent adjustments are made by multiplying the latest adjusted closure cost estimate by the latest inflation factor.
- (C) During the active life of the facility, the owner or operator shall revise the closure cost estimate no later than thirty days after a change in owner or operator's closure requirements that would increase the cost of ~~conducting~~ closure, or no later than sixty days after an unexpected event which increases the cost of ~~conducting~~ closure in accordance with paragraphs (A) and (B) of rule 3745-66-11 and rule 3745-66-14 of the Administrative Code. The revised cost estimate shall be adjusted for inflation as specified in paragraph (B) of this rule. The revised closure cost estimate shall be submitted to the director within thirty days after the estimate is revised.
- (D) The owner or operator shall keep ~~the following~~ at the facility during the active life of the facility: the latest closure cost estimate prepared in accordance with paragraphs (A) and (C) of this rule, and, when this estimate ~~has been~~was adjusted in accordance with paragraph (B) of this rule, the latest closure cost estimate.
- (E) A copy of the facility's current, detailed closure cost estimate prepared in accordance with paragraphs (A) and (B) of this rule shall be submitted annually to the director.
- (1) For owners and operators using a financial mechanism other than the financial test, such submittal of the closure cost estimate shall be made within thirty days after a revision or update to the estimate made in accordance with paragraph (B) of this rule.
- (2) For owners and operators using a financial test, such submittal of the closure cost estimate shall be made within ninety days after the close of the firm's fiscal year following a revision or update to the estimate in accordance with paragraph (B) of this rule.
- (F) The owner or operator shall provide financial assurance documentation that meets the requirements of paragraphs (A) to (G) of rule 3745-66-43 of the Administrative Code, except that where paragraph (H) of rule 3745-66-43 of the Administrative Code is referenced in paragraphs (A) to (G) of rule 3745-66-43 of the Administrative Code, that requirement shall be replaced with the requirements of paragraph (G) of this rule.
- (G) Release of the owner or operator from the ~~requirements of providing~~requirement to provide financial assurance in accordance with paragraph (F) of this rule. Within sixty days after ~~receiving receipt of~~ written documentation from the owner or operator that the final closure ~~has been~~was completed in accordance with paragraphs (A) and (B) of rule 3745-66-11 and rule 3745-66-14 of the Administrative Code, the director will notify the owner or operator in writing that the owner or operator is no longer required by this rule to maintain financial assurance for final closure of the facility, unless the

director has reason to believe that final closure ~~has~~was not ~~been~~ in accordance with paragraphs (A) and (B) of rule 3745-66-11 and rule 3745-66-14 of the Administrative Code. The director will provide the owner or operator a detailed written statement of any such reason to believe final closure ~~has~~was not ~~been~~ completed.

- (H) The owner or operator shall provide liability coverage for sudden accidental occurrences that meet the requirements of paragraph (A) of rule 3745-66-47 of the Administrative Code.
- (I) Period of liability coverage. Within sixty days after ~~receiving~~receipt of written documentation from the owner or operator that final closure ~~has been~~was completed in accordance with paragraphs (A) and (B) of rule 3745-66-11 and rule 3745-66-14 of the Administrative Code, the director will notify the owner or operator in writing that the owner or operator is no longer required by this rule to maintain liability coverage for that facility, unless the director has reason to believe that final closure ~~has~~was not ~~been~~ completed.

[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."]

Effective: 9/29/2021

Five Year Review (FYR) Dates: 6/7/2021 and 06/05/2026

CERTIFIED ELECTRONICALLY

Certification

09/14/2021

Date

Promulgated Under: 119.03
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Prior Effective Dates: 10/31/2015

3745-51-140

Applicability and definitions - financial requirements for management of excluded hazardous secondary materials.

(A) Applicability. Rules 3745-51-140 to 3745-51-151 of the Administrative Code apply to owners or operators of reclamation and intermediate facilities managing hazardous secondary materials excluded under paragraph (A)(24) of rule 3745-51-04 of the Administrative Code, except as provided otherwise in rule 3745-51-140 of the Administrative Code.

(B) States and the federal government are exempt from the financial assurance requirements of rules 3745-51-140 to 3745-51-151 of the Administrative Code.

(C) Definitions. The terms defined in paragraphs (D), (F), (G), and (H) of rule 3745-66-41 of the Administrative Code have the same meanings in rules 3745-51-140 to 3745-51-151 of the Administrative Code.

Effective: 6/12/2023

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06/02/2023

Date

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Rule Amplifies: 3734.12

3745-51-142**Cost estimate - management of excluded hazardous secondary materials.**

(A) The owner or operator shall have a detailed written estimate, in current dollars, of the cost of disposing of any hazardous secondary material as listed or characteristic hazardous waste, and the potential cost of closing the facility as a treatment, storage, and disposal facility.

(1) The estimate shall equal the cost of conducting the activities described in paragraph (A) of this rule at the point when the extent and manner of the facility's operation would make these activities the most expensive.

(2) The cost estimate shall be based on the costs to the owner or operator of hiring a third party to conduct these activities. A third party is a party who is neither a parent nor a subsidiary of the owner or operator. [See definition of "parent corporation" in paragraph (D) of rule 3745-66-41 of the Administrative Code.] The owner or operator may use costs for on-site disposal in accordance with applicable requirements if the owner or operator can demonstrate that on-site disposal capacity will exist at all times over the life of the facility.

(3) The cost estimate may not incorporate any salvage value that may be realized with the sale of hazardous secondary materials, or hazardous or non-hazardous wastes if applicable under paragraph (D) of rule 3745-66-13 of the Administrative Code, facility structures or equipment, land, or other assets associated with the facility.

(4) The owner or operator may not incorporate a zero cost for hazardous secondary materials, or hazardous or non-hazardous wastes if applicable under paragraph (D) of rule 3745-66-13 of the Administrative Code that might have economic value.

(B) During the active life of the facility, the owner or operator shall adjust the cost estimate for inflation within sixty days prior to the anniversary date of the establishment of the financial instruments used to comply with rule 3745-51-143 of the Administrative Code. For owners and operators using the financial test or corporate guarantee, the cost estimate shall be updated for inflation within thirty days after the close of the firm's fiscal year and before submittal of updated information to the director as specified in paragraph (E)(3) of rule 3745-51-143 of the Administrative Code. The adjustment may be made by recalculating the cost estimate in current dollars, or by using an inflation factor derived from the most recent "Implicit Price Deflator for Gross National Product" published by the U.S. department of commerce in the "Survey of Current Business," as specified in paragraphs (B)(1) and (B)(2) of this rule. The inflation factor is the result of dividing the latest published annual deflator by the deflator for the previous year.

(1) The first adjustment is made by multiplying the cost estimate by the inflation factor. The result is the adjusted cost estimate.

(2) Subsequent adjustments are made by multiplying the latest adjusted cost estimate by the latest inflation factor.

(C) During the active life of the facility, the owner or operator shall revise the cost estimate no later than thirty days after a change in a facility's operating plan or design that would increase the costs of conducting the activities described in paragraph (A) of this rule or no later than sixty days after an unexpected event which increases the cost of conducting the activities described in paragraph (A) of this rule. The revised cost estimate shall be adjusted for inflation as specified in paragraph (B) of this rule.

(D) The owner or operator shall keep at the facility during the operating life of the facility the latest cost estimate prepared in accordance with paragraphs (A) and (C) of this rule and, when this estimate has been adjusted in accordance with paragraph (B) of this rule, the latest adjusted cost estimate.

[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.]

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3745-51-143**Financial assurance condition - management of excluded hazardous secondary materials.**

Under paragraph (A)(24)(f)(vi) of rule 3745-51-04 of the Administrative Code, an owner or operator of a reclamation or intermediate facility shall have financial assurance as a condition of the exclusion as required under paragraph (A)(24) of rule 3745-51-04 of the Administrative Code. The owner or operator shall choose from the options as specified in paragraphs (A) to (E) of this rule.

(A) Trust fund.

- (1) An owner or operator may satisfy the requirements of this rule by establishing a trust fund which conforms to the requirements of this paragraph and submitting an originally signed duplicate of the trust agreement to the director. The trustee shall be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency.
- (2) The wording of the trust agreement shall be identical to the wording specified in paragraph (A)(1) of rule 3745-51-151 of the Administrative Code, and the trust agreement shall be accompanied by a formal certification of acknowledgment (for example, see paragraph (A)(2) of rule 3745-51-151 of the Administrative Code.) "Schedule A" of the trust agreement shall be updated within sixty days after a change in the amount of the current cost estimate covered by the agreement.
- (3) The trust fund shall be funded for the full amount of the current cost estimate before the trust fund may be relied upon to satisfy the requirements of this rule.
- (4) Whenever the current cost estimate changes, the owner or operator shall compare the new estimate with the trustee's most recent annual valuation of the trust fund. If the value of the trust fund is less than the amount of the new estimate, the owner or operator, within sixty days after the change in the cost estimate, shall either deposit an amount into the trust fund so that the value of the trust fund after this deposit at least equals the amount of the current cost estimate, or obtain other financial assurance as specified in this rule to cover the difference.
- (5) If the value of the trust fund is greater than the total amount of the current cost estimate, the owner or operator may submit a written request to the director for release of the amount in excess of the current cost estimate.
- (6) If an owner or operator substitutes other financial assurance as specified in this rule for all or part of the trust fund, the owner or operator may submit a written request to the director for release of the amount in excess of the current cost estimate covered by the trust fund.

- (7) Within sixty days after receiving a request from the owner or operator for release of funds as specified in paragraph (A)(5) or (A)(6) of this rule, the director will instruct the trustee to release to the owner or operator such funds as the director specifies in writing. If the owner or operator begins final closure under rules 3745-55-10 to 3745-55-20 of the Administrative Code or rules 3745-66-10 to 3745-66-21 of the Administrative Code, an owner or operator may request reimbursements for partial or final closure expenditures by submitting itemized bills to the director. The owner or operator may request reimbursements for partial closure only if sufficient funds are remaining in the trust fund to cover the maximum costs of closing the facility over the remaining operating life of the facility. No later than sixty days after receiving bills for partial or final closure activities, the director will instruct the trustee to make reimbursements in those amounts as the director specifies in writing, if the director determines that the partial or final closure expenditures are in accordance with the approved closure plan, or otherwise justified. If the director has reason to believe that the maximum cost of closure over the remaining life of the facility will be significantly greater than the value of the trust fund, the director may withhold reimbursements of such amounts as the director deems prudent until the director determines, in accordance with paragraph (I) of rule 3745-66-43 of the Administrative Code that the owner or operator is no longer required to maintain financial assurance for final closure of the facility. If the director does not instruct the trustee to make such reimbursements, the director will provide to the owner or operator a detailed written statement of reasons.
- (8) The director will agree to termination of the trust when:
- (a) An owner or operator substitutes alternate financial assurance as specified in this rule; or
 - (b) The director releases the owner or operator from the requirements of this rule in accordance with paragraph (I) of this rule.
- (B) Surety bond guaranteeing payment into a trust fund.
- (1) An owner or operator may satisfy the requirements of this rule by obtaining a surety bond which conforms to the requirements of this paragraph and submitting the bond to the director. The surety company issuing the bond shall, at a minimum, be among those listed as acceptable sureties on federal bonds in "Circular 570" of the U.S. department of the treasury.
 - (2) The wording of the surety bond shall be identical to the wording specified in paragraph (B) of rule 3745-51-151 of the Administrative Code.

- (3) The owner or operator who uses a surety bond to satisfy the requirements of this rule shall also establish a standby trust fund. Under the terms of the bond, all payments made thereunder will be deposited by the surety directly into the standby trust fund in accordance with instructions from the director. This standby trust fund shall meet the requirements specified in paragraph (A) of this rule, except that:
- (a) An originally signed duplicate of the trust agreement shall be submitted to the director with the surety bond; and
 - (b) Until the standby trust fund is funded pursuant to the requirements of this rule, the following are not required by these rules:
 - (i) Payments into the trust fund as specified in paragraph (A) of this rule;
 - (ii) Updating "Schedule A" of the trust agreement (see paragraph (A) of rule 3745-51-151 of the Administrative Code) to show current cost estimates;
 - (iii) Annual valuations as required by the trust agreement; and
 - (iv) Notices of nonpayment as required by the trust agreement.
- (4) The bond shall guarantee that the owner or operator will:
- (a) Fund the standby trust fund in an amount equal to the penal sum of the bond before loss of the exclusion under paragraph (A)(24) of rule 3745-51-04 of the Administrative Code; or
 - (b) Fund the standby trust fund in an amount equal to the penal sum within fifteen days after an administrative order to begin closure issued by the director becomes final, or within fifteen days after an order to begin closure is issued by a U.S. district court or other court of competent jurisdiction; or
 - (c) Provide alternate financial assurance as specified in this rule, and obtain the director's written approval of the assurance provided, within ninety days after receipt by both the owner or operator and the director of a notice of cancellation of the bond from the surety.
- (5) Under the terms of the bond, the surety will become liable on the bond obligation when the owner or operator fails to perform as guaranteed by the bond.

- (6) The penal sum of the bond shall be in an amount at least equal to the current cost estimate, except as provided in paragraph (F) of this rule.
- (7) Whenever the current cost estimate increases to an amount greater than the penal sum, the owner or operator, within sixty days after the increase, shall either cause the penal sum to be increased to an amount at least equal to the current cost estimate and submit evidence of such increase to the director, or obtain other financial assurance as specified in this rule to cover the increase. Whenever the current cost estimate decreases, the penal sum may be reduced to the amount of the current cost estimate after written approval by the director.
- (8) Under the terms of the bond, the surety may cancel the bond by sending notice of cancellation by certified mail to the owner or operator and to the director. Cancellation may not occur, however, during the one hundred twenty days beginning on the date of receipt of the notice of cancellation by both the owner or operator and the director, as evidenced by the return receipts.
- (9) The owner or operator may cancel the bond if the director has given prior written consent based on his receipt of evidence of alternate financial assurance as specified in this rule.

(C) Letter of credit.

- (1) An owner or operator may satisfy the requirements of this rule by obtaining an irrevocable standby letter of credit which conforms to the requirements of this paragraph and submitting the letter to the director. The issuing institution shall be an entity which has the authority to issue letters of credit and whose letter-of-credit operations are regulated and examined by a federal or state agency.
- (2) The wording of the letter of credit shall be identical to the wording specified in paragraph (C) of rule 3745-51-151 of the Administrative Code.
- (3) An owner or operator who uses a letter of credit to satisfy the requirements of this rule shall also establish a standby trust fund. Under the terms of the letter of credit, all amounts paid pursuant to a draft by the director will be deposited by the issuing institution directly into the standby trust fund in accordance with instructions from the director. This standby trust fund shall meet the requirements of the trust fund specified in paragraph (A) of this rule, except that:

 - (a) An originally signed duplicate of the trust agreement shall be submitted to the director with the letter of credit; and

- (b) Unless the standby trust fund is funded pursuant to the requirements of this rule, the following are not required by this chapter:
- (i) Payments into the trust fund as specified in paragraph (A) of this rule;
 - (ii) Updating of "Schedule A" of the trust agreement (see paragraph (A) of rule 3745-51-151 of the Administrative Code) to show current cost estimates;
 - (iii) Annual valuations as required by the trust agreement; and
 - (iv) Notices of nonpayment as required by the trust agreement.
- (4) The letter of credit shall be accompanied by a letter from the owner or operator referring to the letter of credit by number, issuing institution, and date, and providing the U.S. EPA identification number (if any issued), name, and address of the facility, and the amount of funds assured for the facility by the letter of credit.
- (5) The letter of credit shall be irrevocable and issued for a period of at least one year. The letter of credit shall provide that the expiration date will be automatically extended for a period of at least one year unless, at least one hundred twenty days before the current expiration date, the issuing institution notifies both the owner or operator and the director by certified mail of a decision not to extend the expiration date. Under the terms of the letter of credit, the one hundred twenty days will begin on the date when both the owner or operator and the director have received the notice, as evidenced by the return receipts.
- (6) The letter of credit shall be issued in an amount at least equal to the current cost estimate, except as provided in paragraph (F) of this rule.
- (7) Whenever the current cost estimate increases to an amount greater than the amount of the credit, the owner or operator, within sixty days after the increase, shall either cause the amount of the credit to be increased so that the amount of the credit at least equals the current cost estimate and submit evidence of such increase to the director, or obtain other financial assurance as specified in this rule to cover the increase. Whenever the current cost estimate decreases, the amount of the credit may be reduced to the amount of the current cost estimate after written approval by the director.
- (8) Following a determination by the director that the hazardous secondary materials do not meet the conditions of the exclusion under paragraph (A)(24) of rule 3745-51-04 of the Administrative Code, the director may draw on the letter of credit.

- (9) If the owner or operator does not establish alternate financial assurance as specified in this rule and obtain written approval of such alternate assurance from the director within ninety days after receipt by both the owner or operator and the director of a notice from the issuing institution that the issuing institution has decided not to extend the letter of credit beyond the current expiration date, the director will draw on the letter of credit. The director may delay the drawing if the issuing institution grants an extension of the term of the credit. During the last thirty days of any such extension the director will draw on the letter of credit if the owner or operator has failed to provide alternate financial assurance as specified in this rule and obtain written approval of such assurance from the director.
- (10) The director will return the letter of credit to the issuing institution for termination when:
- (a) An owner or operator substitutes alternate financial assurance as specified in this rule; or
 - (b) The director releases the owner or operator from the requirements of this rule in accordance with paragraph (I) of this rule.

(D) Insurance.

- (1) An owner or operator may satisfy the requirements of this rule by obtaining insurance which conforms to the requirements of this paragraph and submitting a certificate of such insurance to the director. At a minimum, the insurer shall be licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more states.
- (2) The wording of the certificate of insurance shall be identical to the wording specified in paragraph (D) of rule 3745-51-151 of the Administrative Code.
- (3) The insurance policy shall be issued for a face amount at least equal to the current cost estimate, except as provided in paragraph (F) of this rule. The term "face amount" means the total amount the insurer is obligated to pay under the policy. Actual payments by the insurer will not change the face amount, although the insurer's future liability will be lowered by the amount of the payments.
- (4) The insurance policy shall guarantee that funds will be available whenever needed to pay the cost of removal of all hazardous secondary materials from the unit, to pay the cost of decontamination of the unit, to pay the costs of the performance of activities required under rules 3745-55-10 to 3745-55-20 of the Administrative Code or rules 3745-66-10 to 3745-66-21 of the Administrative

Code, as applicable, for the facilities covered by this policy. The policy also shall guarantee that once funds are needed, the insurer will be responsible for paying out funds, up to an amount equal to the face amount of the policy, upon the direction of the director, to such party or parties as the director specifies.

- (5) After beginning partial or final closure under Chapters 3745-54 to 3745-57 and 3745-205 of the Administrative Code or Chapters 3745-65 to 3745-69 and 3745-256 of the Administrative Code, as applicable, an owner or operator or any other authorized person may request reimbursements for closure expenditures by submitting itemized bills to the director. The owner or operator may request reimbursements only if the remaining value of the policy is sufficient to cover the maximum costs of closing the facility over the facility's remaining operating life. Within sixty days after receiving bills for closure activities, the director will instruct the insurer to make reimbursements in such amounts as the director specifies in writing if the director determines that the expenditures are in accordance with the approved plan or otherwise justified. If the director has reason to believe that the maximum cost over the remaining life of the facility will be significantly greater than the face amount of the policy, the director may withhold reimbursement of such amounts as the director deems prudent until the director determines, in accordance with paragraph (H) of this rule, that the owner or operator is no longer required to maintain financial assurance for the particular facility. If the director does not instruct the insurer to make such reimbursements, the director will provide to the owner or operator a detailed written statement of reasons.
- (6) The owner or operator shall maintain the policy in full force and effect until the director consents to termination of the policy by the owner or operator as specified in paragraph (I)(10) of this rule. Failure to pay the premium, without substitution of alternate financial assurance as specified in this rule, will constitute a significant violation of these rules warranting such remedy as the director deems necessary. Such violation will be deemed to begin upon receipt by the director of a notice of future cancellation, termination, or failure to renew due to nonpayment of the premium, rather than upon the date of expiration.
- (7) Each policy shall contain a provision allowing assignment of the policy to a successor owner or operator. Such assignment may be conditional upon consent of the insurer, provided such consent is not unreasonably refused.
- (8) The policy shall provide that the insurer may not cancel, terminate, or fail to renew the policy except for failure to pay the premium. The automatic renewal of the policy shall, at a minimum, provide the insured with the option of renewal at the face amount of the expiring policy. If there is a failure to pay the premium, the insurer may elect to cancel, terminate, or fail to renew the policy by sending

notice by certified mail to the owner or operator and the director. Cancellation, termination, or failure to renew may not occur, however, during the one hundred twenty days beginning with the date of receipt of the notice by both the director and the owner or operator, as evidenced by the return receipts. Cancellation, termination, or failure to renew may not occur and the policy will remain in full force and effect in the event that on or before the date of expiration:

(a) The director deems the facility abandoned; or

(b) Conditional exclusion or interim status is lost, terminated, or revoked; or

(c) Closure is ordered by the director or a U.S. district court or other court of competent jurisdiction; or

(d) The owner or operator is named as debtor in a voluntary or involuntary proceeding under Title 11 (bankruptcy), U.S. Code; or

(e) The premium due is paid.

(9) Whenever the current cost estimate increases to an amount greater than the face amount of the policy, the owner or operator, within sixty days after the increase, shall either cause the face amount to be increased to an amount at least equal to the current cost estimate and submit evidence of such increase to the director, or obtain other financial assurance as specified in this rule to cover the increase. Whenever the current cost estimate decreases, the face amount may be reduced to the amount of the current cost estimate after written approval by the director.

(10) The director will give written consent to the owner or operator that the owner or operator may terminate the insurance policy when:

(a) An owner or operator substitutes alternate financial assurance as specified in this rule; or

(b) The director releases the owner or operator from the requirements of this rule in accordance with paragraph (I) of this rule.

(E) Financial test and corporate guarantee.

(1) An owner or operator may satisfy the requirements of this rule by demonstrating that the owner or operator passes a financial test as specified in this paragraph. To pass this test, the owner or operator shall meet the criteria of either paragraph (E)(1)(a) or (E)(1)(b) of this rule:

(a) The owner or operator shall have:

- (i) Two of the following three ratios: a ratio of total liabilities to net worth less than 2.0; a ratio of the sum of net income plus depreciation, depletion, and amortization to total liabilities greater than 0.1; and a ratio of current assets to current liabilities greater than 1.5; and
 - (ii) Net working capital and tangible net worth each at least six times the sum of the current cost estimates and the current plugging and abandonment cost estimates; and
 - (iii) Tangible net worth of at least ten million dollars; and
 - (iv) Assets located in the United States amounting to at least ninety per cent of total assets or at least six times the sum of the current cost estimates and the current plugging and abandonment cost estimates.
- (b) The owner or operator shall have:
 - (i) A current rating for his most recent bond issuance of "AAA, AA, A, or BBB" as issued by "Standard and Poor's" or "Aaa, Aa, A, or Baa" as issued by "Moody's;" and
 - (ii) Tangible net worth at least six times the sum of the current cost estimates and the current plugging and abandonment cost estimates; and
 - (iii) Tangible net worth of at least ten million dollars; and
 - (iv) Assets located in the United States amounting to at least ninety per cent of total assets or at least six times the sum of the current cost estimates and the current plugging and abandonment cost estimates.
- (2) The phrase "current cost estimates" as used in paragraph (E)(1) of this rule refers to the cost estimates required to be shown in paragraphs 1 to 4 of the letter from the owner's or operator's chief financial officer [paragraph (E) of rule 3745-51-151 of the Administrative Code]. The phrase "current plugging and abandonment cost estimates" as used in paragraph (E)(1) of this rule refers to the cost estimates required to be shown in paragraphs 1 to 4 of the letter from the owner's or operator's chief financial officer [rules 3745-34-13 to 3745-34-15 of the Administrative Code].
- (3) To demonstrate that the owner or operator meets this test, the owner or operator shall submit the following items to the director:

- (a) A letter signed by the owner's or operator's chief financial officer and worded as specified in paragraph (E) of rule 3745-51-151 of the Administrative Code; and
 - (b) A copy of the independent certified public accountant's report on examination of the owner's or operator's financial statements for the latest completed fiscal year; and
 - (c) If the chief financial officer's letter providing evidence of financial assurance includes financial data showing that the owner or operator satisfies paragraph (E)(1)(a) of this rule that are different from the data in the audited financial statements referred to in paragraph (E)(3)(b) of this rule or any other audited financial statement or data filed with the securities and exchange commission, then a special report from the owner's or operator's independent certified public accountant to the owner or operator is required. The special report shall be based upon an agreed upon procedures engagement in accordance with professional auditing standards and shall describe the procedures performed in comparing the data in the chief financial officer's letter derived from the independently audited, year-end financial statements for the latest fiscal year with the amounts in such financial statements, the findings of the comparison, and the reasons for any differences.
- (4) The owner or operator may obtain an extension of the time allowed for submittal of the documents specified in paragraph (E)(3) of this rule if the fiscal year of the owner or operator ends during the ninety days prior to the first effective date of this rule and if the year-end financial statements for that fiscal year will be audited by an independent certified public accountant. The extension will end no later than ninety days after the end of the owner's or operator's fiscal year. To obtain the extension, the owner's or operator's chief financial officer shall send, by the first effective date of this rule, a letter to the director of each U.S. EPA region in which the owner's or operator's facilities to be covered by the financial test are located. This letter from the chief financial officer shall:
- (a) Request the extension;
 - (b) Certify that the chief financial officer has grounds to believe that the owner or operator meets the criteria of the financial test;
 - (c) Specify for each facility to be covered by the test the U.S. EPA identification number (if any issued), name, address, and current cost estimates to be covered by the test;

- (d) Specify the date ending the owner's or operator's last complete fiscal year before the first effective date of this rule in rules 3745-51-140 to 3745-51-151 of the Administrative Code;
 - (e) Specify the date, no later than ninety days after the end of such fiscal year, when the owner or operator will submit the documents specified in paragraph (E)(3) of this rule; and
 - (f) Certify that the year-end financial statements of the owner or operator for such fiscal year will be audited by an independent certified public accountant.
- (5) After the initial submittal of items specified in paragraph (E)(3) of this rule, the owner or operator shall send updated information to the director within ninety days after the close of each succeeding fiscal year. This information shall consist of all three items specified in paragraph (E)(3) of this rule.
- (6) If the owner or operator no longer meets the requirements of paragraph (E)(1) of this rule, the owner or operator shall send notice to the director of intent to establish alternate financial assurance as specified in this rule. The notice shall be sent by certified mail within ninety days after the end of the fiscal year for which the year-end financial data show that the owner or operator no longer meets the requirements. The owner or operator shall provide the alternate financial assurance within one hundred twenty days after the end of such fiscal year.
- (7) The director may, based on a reasonable belief that the owner or operator may no longer meet the requirements of paragraph (E)(1) of this rule, require reports of financial condition at any time from the owner or operator in addition to those specified in paragraph (E)(3) of this rule. If the director finds, on the basis of such reports or other information, that the owner or operator no longer meets the requirements of paragraph (E)(1) of this rule, the owner or operator shall provide alternate financial assurance as specified in this rule within thirty days after notification of such a finding.
- (8) The director may disallow use of this test on the basis of qualifications in the opinion expressed by the independent certified public accountant in his report on examination of the owner's or operator's financial statements [see paragraph (E)(3)(b) of this rule]. An adverse opinion or a disclaimer of opinion will be cause for disallowance. The director will evaluate other qualifications on an individual basis. The owner or operator shall provide alternate financial assurance as specified in this rule within thirty days after notification of the disallowance.

- (9) The owner or operator is no longer required to submit the items specified in paragraph (E)(3) of this rule when:
- (a) An owner or operator substitutes alternate financial assurance as specified in this rule; or
 - (b) The director releases the owner or operator from the requirements of this rule in accordance with paragraph (I) of this rule.
- (10) An owner or operator may meet the requirements of this rule by obtaining a written guarantee. The guarantor shall be the direct or higher-tier parent corporation of the owner or operator, a firm whose parent corporation is also the parent corporation of the owner or operator, or a firm with a "substantial business relationship" with the owner or operator. The guarantor shall meet the requirements for owners or operators in paragraphs (E)(1) to (E)(8) of this rule and shall comply with the terms of the guarantee. The wording of the guarantee shall be identical to the wording specified in paragraph (G)(1) of rule 3745-51-151 of the Administrative Code. A certified copy of the guarantee shall accompany the items sent to the director as specified in paragraph (E) (3) of this rule. One of these items shall be the letter from the guarantor's chief financial officer. If the guarantor's parent corporation is also the parent corporation of the owner or operator, the letter shall describe the value received in consideration of the guarantee. If the guarantor is a firm with a "substantial business relationship" with the owner or operator, this letter shall describe this "substantial business relationship" and the value received in consideration of the guarantee. The terms of the guarantee shall provide that:
- (a) Following a determination by the director that the hazardous secondary materials at the owner or operator's facility covered by this guarantee do not meet the conditions of the exclusion under paragraph (A)(24) of rule 3745-51-04 of the Administrative Code, the guarantor will dispose of any hazardous secondary material as hazardous waste and close the facility in accordance with closure requirements in Chapters 3745-54 to 3745-57 and 3745-205 of the Administrative Code or Chapters 3745-65 to 3745-69 and 3745-256 of the Administrative Code, as applicable, or establish a trust fund as specified in paragraph (A) of this rule in the name of the owner or operator in the amount of the current cost estimate.
 - (b) The corporate guarantee will remain in force unless the guarantor sends notice of cancellation by certified mail to the owner or operator and to the director. Cancellation may not occur, however, during the one hundred twenty days beginning on the date of receipt of the notice of cancellation

by both the owner or operator and the director, as evidenced by the return receipts.

(c) If the owner or operator fails to provide alternate financial assurance as specified in this rule and obtain the written approval of such alternate assurance from the director within ninety days after receipt by both the owner or operator and the director of a notice of cancellation of the corporate guarantee from the guarantor, the guarantor will provide such alternate financial assurance in the name of the owner or operator.

(F) Use of multiple financial mechanisms. An owner or operator may satisfy the requirements of this rule by establishing more than one financial mechanism per facility. These mechanisms are limited to trust funds, surety bonds, letters of credit, and insurance. The mechanisms shall be as specified in paragraphs (A) to (D) of this rule, respectively, of this rule, except that it is the combination of mechanisms, rather than the single mechanism, which shall provide financial assurance for an amount at least equal to the current cost estimate. If an owner or operator uses a trust fund in combination with a surety bond or a letter of credit, he the owner or operator may use the trust fund as the standby trust fund for the other mechanisms. A single standby trust fund may be established for two or more mechanisms. The director may use any or all of the mechanisms to provide for the facility.

(G) Use of a financial mechanism for multiple facilities. An owner or operator may use a financial assurance mechanism specified in this rule to meet the requirements of this rule for more than one facility. Evidence of financial assurance submitted to the director shall include a list showing, for each facility, the U.S. EPA identification number (if any issued), name, address, and the amount of funds assured by the mechanism. If the facilities covered by the mechanism are in more than one U.S. EPA region, identical evidence of financial assurance shall be submitted to and maintained with the directors of all such regions. The amount of funds available through the mechanism shall be no less than the sum of funds that would be available if a separate mechanism had been established and maintained for each facility. In directing funds available through the mechanism for any of the facilities covered by the mechanism, the director may direct only the amount of funds designated for that facility, unless the owner or operator agrees to the use of additional funds available under the mechanism.

(H) Removal and decontamination plan for release

(1) An owner or operator of a reclamation facility or an intermediate facility who wishes to be released from his financial assurance obligations under paragraph (A)(24)(f)(vi) of rule 3745-51-04 of the Administrative Code shall submit a plan for removing all hazardous secondary material residues to the director at

least one hundred eighty days prior to the date on which he the owner or operator expects to cease to operate under the exclusion.

(2) The plan shall include, at least:

(a) For each hazardous secondary materials storage unit subject to financial assurance requirements under paragraph (A)(24)(f)(vi) of rule 3745-51-04 of the Administrative Code, a description of how all excluded hazardous secondary materials will be recycled or sent for recycling, and how all residues, contaminated containment systems (liners, etc.), contaminated soils, subsoils, structures, and equipment will be removed or decontaminated as necessary to protect human health and the environment, and

(b) A detailed description of the steps necessary to remove or decontaminate all hazardous secondary material residues and contaminated containment system components, equipment, structures, and soils including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination necessary to protect human health and the environment; and

(c) A detailed description of any other activities necessary to protect human health and the environment during this timeframe, including, but not limited to, leachate collection, run-on and run-off control, etc.; and

(d) A schedule for conducting the activities described which, at a minimum, includes the total time required to remove all excluded hazardous secondary materials for recycling and decontaminate all units subject to financial assurance under paragraph (A)(24)(f)(vi) of rule 3745-51-04 of the Administrative Code and the time required for intervening activities which will allow tracking of the progress of decontamination.

(3) The director will provide the owner or operator and the public, through a newspaper notice, the opportunity to submit written comments on the plan and request modifications to the plan no later than thirty days from the date of the notice. The director, in response to a request or at the director's discretion, also shall hold a public hearing whenever such a hearing might clarify one or more issues concerning the plan. The director will give public notice of the public hearing at least thirty days before the public hearing occurs. (Public notice of the public hearing may be given at the same time as notice of the opportunity for the public to submit written comments, and the two notices may be combined.) The director will approve, modify, or disapprove the plan within ninety days of

receipt of the plan. If the director does not approve the plan, the director shall provide the owner or operator with a detailed written statement of reasons for the refusal and the owner or operator shall modify the plan or submit a new plan for approval within thirty days after receiving such written statement. The director will approve or modify this plan in writing within sixty days. If the director modifies the plan, this modified plan becomes the approved plan. The director shall assure that the approved plan is consistent with paragraph (H) of this rule. A copy of the modified plan with a detailed statement of reasons for the modifications shall be mailed to the owner or operator.

(4) Within sixty days after completion of the activities described for each hazardous secondary materials management unit, the owner or operator shall submit to the director, by registered mail, a certification that all hazardous secondary materials have been removed from the unit and the unit has been decontaminated in accordance with the specifications in the approved plan. The certification shall be signed by the owner or operator and by a qualified professional engineer. Documentation supporting the professional engineer's certification shall be furnished to the director, upon request, until the director releases the owner or operator from the financial assurance requirements for paragraph (A)(24)(f)(vi) of rule 3745-51-04 of the Administrative Code.

(I) Release of the owner or operator from the requirements of this rule. Within sixty days after receiving certifications from the owner or operator and a qualified professional engineer that all hazardous secondary materials have been removed from the facility or a unit at the facility and the facility or a unit has been decontaminated in accordance with the approved plan per paragraph (H) of this rule, the director will notify the owner or operator in writing that the owner or operator is no longer required under paragraph (A)(24)(f)(vi) of rule 3745-51-04 of the Administrative Code to maintain financial assurance for that facility or a unit at the facility, unless the director has reason to believe that all hazardous secondary materials have not been removed from the facility or unit at a facility or that the facility or unit has not been decontaminated in accordance with the approved plan. The director shall provide the owner or operator a detailed written statement of any such reason to believe that all hazardous secondary materials have not been removed from the unit or that the unit has not been decontaminated in accordance with the approved plan.

[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."]

Effective: 6/12/2023

Five Year Review (FYR) Dates: Exempt

CERTIFIED ELECTRONICALLY

Certification

06/02/2023

Date

Promulgated Under: 119.03
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3745-51-147**Liability requirements - management of excluded hazardous secondary materials.**

(A) Coverage for sudden accidental occurrences. An owner or operator of a hazardous secondary material reclamation facility or an intermediate facility subject to financial assurance requirements under paragraph (A)(24)(f)(vi) of rule 3745-51-04 of the Administrative Code, or a group of such facilities, shall demonstrate financial responsibility for bodily injury and property damage to third parties caused by sudden accidental occurrences arising from operations of the facility or group of facilities. The owner or operator shall have and maintain liability coverage for sudden accidental occurrences in the amount of at least one million dollars per occurrence with an annual aggregate of at least two million dollars, exclusive of legal defense costs. This liability coverage may be demonstrated as specified in paragraph (A)(1), (A)(2), (A)(3), (A)(4), (A)(5), or (A)(6) of this rule:

(1) An owner or operator may demonstrate the required liability coverage by having liability insurance as specified in this paragraph.

(a) Each insurance policy shall be amended by attachment of the "Hazardous Secondary Material Facility Liability Endorsement," or evidenced by a "Certificate of Liability Insurance." The wording of the endorsement shall be identical to the wording specified in paragraph (H) of rule 3745-51-151 of the Administrative Code. The wording of the certificate of insurance shall be identical to the wording specified in paragraph (I) of rule 3745-51-151 of the Administrative Code. The owner or operator shall submit a signed duplicate original of the endorsement or the certificate of insurance to the director, or directors if the facilities are located in more than one U.S. EPA region. If requested by a director, the owner or operator shall provide a signed duplicate original of the insurance policy.

(b) Each insurance policy shall be issued by an insurer which, at a minimum, is licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more states.

(2) An owner or operator may meet the requirements of this rule by passing a financial test or using the guarantee for liability coverage as specified in paragraphs (F) and (G) of this rule.

(3) An owner or operator may meet the requirements of this rule by obtaining a letter of credit for liability coverage as specified in paragraph (H) of this rule.

(4) An owner or operator may meet the requirements of this rule by obtaining a surety bond for liability coverage as specified in paragraph (I) of this rule.

- (5) An owner or operator may meet the requirements of this rule by obtaining a trust fund for liability coverage as specified in paragraph (J) of this rule.
- (6) An owner or operator may demonstrate the required liability coverage through the use of combinations of insurance, financial test, guarantee, letter of credit, surety bond, and trust fund, except that the owner or operator may not combine a financial test covering part of the liability coverage requirement with a guarantee unless the financial statement of the owner or operator is not consolidated with the financial statement of the guarantor. The amounts of coverage demonstrated shall total at least the minimum amounts required by this rule. If the owner or operator demonstrates the required coverage through the use of a combination of financial assurances under this paragraph, the owner or operator shall specify at least one such assurance as "primary" coverage and shall specify other assurance as "excess" coverage.
- (7) An owner or operator shall notify the director in writing within thirty days whenever:
- (a) A claim results in a reduction in the amount of financial assurance for liability coverage provided by a financial instrument authorized in paragraphs (A)(1) to (A)(6) of this rule; or
 - (b) A certification of valid claim for bodily injury or property damages caused by a sudden or non-sudden accidental occurrence arising from the operation of a hazardous secondary material reclamation facility or intermediate facility is entered between the owner or operator and third-party claimant for liability coverage under paragraphs (A)(1) to (A)(6) of this rule; or
 - (c) A final court order establishing a judgment for bodily injury or property damage caused by a sudden or non-sudden accidental occurrence arising from the operation of a hazardous secondary material reclamation facility or intermediate facility is issued against the owner or operator or an instrument that is providing financial assurance for liability coverage under paragraphs (A)(1) to (A)(6) of this rule.
- (B) Coverage for non-sudden accidental occurrences. An owner or operator of a "hazardous secondary material" reclamation facility or "intermediate facility" with "land-based units," as defined in rule 3745-50-10 of the Administrative Code, which are used to manage hazardous secondary materials excluded under paragraph (A)(24) of rule 3745-51-04 of the Administrative Code or a group of such facilities, shall demonstrate financial responsibility for bodily injury and property damage to third parties caused by non-sudden accidental occurrences arising from operations of the facility or group

of facilities. The owner or operator shall have and maintain liability coverage for non-sudden accidental occurrences in the amount of at least three million dollars per occurrence with an annual aggregate of at least six million dollars, exclusive of legal defense costs. An owner or operator who shall meet the requirements of this rule may combine the required per-occurrence coverage levels for sudden and non-sudden accidental occurrences into a single per-occurrence level, and combine the required annual aggregate coverage levels for sudden and non-sudden accidental occurrences into a single annual aggregate level. Owners or operators who combine coverage levels for sudden and non-sudden accidental occurrences shall maintain liability coverage in the amount of at least four million dollars per occurrence and eight million dollars annual aggregate. This liability coverage may be demonstrated as specified in paragraph (B)(1), (B)(2), (B)(3), (B)(4), (B)(5), or (B)(6) of this rule:

(1) An owner or operator may demonstrate the required liability coverage by having liability insurance as specified in this paragraph.

(a) Each insurance policy shall be amended by attachment of the "Hazardous Secondary Material Facility Liability Endorsement" or evidenced by a "Certificate of Liability Insurance." The wording of the endorsement shall be identical to the wording specified in paragraph (H) of rule 3745-51-151 of the Administrative Code. The wording of the certificate of insurance shall be identical to the wording specified in paragraph (I) of rule 3745-51-151 of the Administrative Code. The owner or operator shall submit a signed duplicate original of the endorsement or the certificate of insurance to the director, or directors if the facilities are located in more than one U.S. EPA region. If requested by a director, the owner or operator shall provide a signed duplicate original of the insurance policy.

(b) Each insurance policy shall be issued by an insurer which, at a minimum, is licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more states.

(2) An owner or operator may meet the requirements of this rule by passing a financial test or using the guarantee for liability coverage as specified in paragraphs (F) and (G) of this rule.

(3) An owner or operator may meet the requirements of this rule by obtaining a letter of credit for liability coverage as specified in paragraph (H) of this rule.

(4) An owner or operator may meet the requirements of this rule by obtaining a surety bond for liability coverage as specified in paragraph (I) of this rule.

- (5) An owner or operator may meet the requirements of this rule by obtaining a trust fund for liability coverage as specified in paragraph (J) of this rule.
- (6) An owner or operator may demonstrate the required liability coverage through the use of combinations of insurance, financial test, guarantee, letter of credit, surety bond, and trust fund, except that the owner or operator may not combine a financial test covering part of the liability coverage requirement with a guarantee unless the financial statement of the owner or operator is not consolidated with the financial statement of the guarantor. The amounts of coverage demonstrated shall total at least the minimum amounts required by this rule. If the owner or operator demonstrates the required coverage through the use of a combination of financial assurances under this paragraph, the owner or operator shall specify at least one such assurance as "primary" coverage and shall specify other assurance as "excess" coverage.
- (7) An owner or operator shall notify the director in writing within thirty days whenever:
- (a) A claim results in a reduction in the amount of financial assurance for liability coverage provided by a financial instrument authorized in paragraphs (B)(1) to (B)(6) of this rule; or
 - (b) A certification of valid claim for bodily injury or property damages caused by a sudden or non-sudden accidental occurrence arising from the operation of a hazardous secondary material treatment storage facility is entered between the owner or operator and third-party claimant for liability coverage under paragraphs (B)(1) to (B)(6) of this rule; or
 - (c) A final court order establishing a judgment for bodily injury or property damage caused by a sudden or non-sudden accidental occurrence arising from the operation of a hazardous secondary material treatment or storage facility is issued against the owner or operator or an instrument that is providing financial assurance for liability coverage under paragraphs (B)(1) to (B)(6) of this rule.
- (C) Request for variance. If an owner or operator can demonstrate to the satisfaction of the director that the levels of financial responsibility required by paragraph (A) or (B) of this rule are not consistent with the degree and duration of risk associated with treatment or storage at the facility or group of facilities, the owner or operator may obtain a variance from the director. The request for a variance shall be submitted in writing to the director. If granted, the variance will take the form of an adjusted level of required liability coverage, such level to be based on the director's assessment of the degree and duration of risk associated with the ownership or operation of

the facility or group of facilities. The director may require an owner or operator who requests a variance to provide such technical and engineering information as is deemed necessary by the director to determine a level of financial responsibility other than that required by paragraph (A) or (B) of this rule.

(D) Adjustments by the director. If the director determines that the levels of financial responsibility required by paragraph (A) or (B) of this rule are not consistent with the degree and duration of risk associated with treatment or storage at the facility or group of facilities, the director may adjust the level of financial responsibility required under paragraph (A) or (B) of this rule as may be necessary to protect human health and the environment. This adjusted level will be based on the director's assessment of the degree and duration of risk associated with the ownership or operation of the facility or group of facilities. In addition, if the director determines that there is a significant risk to human health and the environment from non-sudden accidental occurrences resulting from the operations of a facility that is not a surface impoundment, pile, or land treatment facility, the director may require that an owner or operator of the facility comply with paragraph (B) of this rule. An owner or operator shall furnish to the director, within a reasonable time, any information which the director requests to determine whether cause exists for such adjustments of level or type of coverage.

(E) Period of coverage. Within sixty days after receiving certifications from the owner or operator and a qualified professional engineer that all hazardous secondary materials have been removed from the facility or a unit at the facility and the facility or a unit has been decontaminated in accordance with the approved plan under paragraph (H) of rule 3745-51-143 of the Administrative Code, the director will notify the owner or operator in writing that the owner or operator is no longer required under paragraph (A)(24)(f)(vi) of rule 3745-51-04 of the Administrative Code to maintain liability coverage for that facility or a unit at the facility, unless the director has reason to believe that that all hazardous secondary materials have not been removed from the facility or unit at a facility or that the facility or unit has not been decontaminated in accordance with the approved plan.

(F) Financial test for liability coverage.

(1) An owner or operator may satisfy the requirements of this rule by demonstrating that the owner or operator passes a financial test as specified in this paragraph. To pass this test the owner or operator shall meet the criteria of paragraph (F) (1)(a) or (F)(1)(b) of this rule:

(a) The owner or operator shall have:

(i) Net working capital and tangible net worth each at least six times the amount of liability coverage to be demonstrated by this test; and

(ii) Tangible net worth of at least ten million dollars; and

(iii) Assets in the United States amounting to either:

(a) At least ninety per cent of the owner's total assets; or

(b) At least six times the amount of liability coverage to be demonstrated by this test.

(b) The owner or operator shall have:

(i) A current rating for the owner's most recent bond issuance of "AAA, AA, A, or BBB" as issued by "Standard and Poor's," or "Aaa, Aa, A, or Baa" as issued by "Moody's;" and

(ii) Tangible net worth of at least ten million dollars; and

(iii) Tangible net worth at least six times the amount of liability coverage to be demonstrated by this test; and

(iv) Assets in the United States amounting to either:

(a) At least ninety per cent of the owner's total assets; or

(b) At least six times the amount of liability coverage to be demonstrated by this test.

(2) The phrase "amount of liability coverage" as used in paragraph (F)(1) of this rule refers to the annual aggregate amounts for which coverage is required under paragraphs (A) and (B) of this rule and the annual aggregate amounts for which coverage is required under paragraphs (A) and (B) of rule 3745-55-47 of the Administrative Code and paragraphs (A) and (B) of rule 3745-66-47 of the Administrative Code.

(3) To demonstrate that the owner or operator meets this test, the owner or operator shall submit the following three items to the director:

(a) A letter signed by the owner's or operator's chief financial officer and worded as specified in paragraph (F) of rule 3745-51-151 of the Administrative Code. If an owner or operator is using the financial test to demonstrate both assurance as specified by paragraph (E) of rule 3745-51-143 of the Administrative Code, and liability coverage, the owner or operator shall submit the letter specified in paragraph (F) of rule 3745-51-151 of the Administrative Code to cover both forms of

financial responsibility; a separate letter as specified in paragraph (E) of rule 3745-51-151 of the Administrative Code is not required.

- (b) A copy of the independent certified public accountant's report on examination of the owner's or operator's financial statements for the latest completed fiscal year.
- (c) A copy of the independent certified public accountant's report on examination of the owner's or operator's financial statements for the latest completed fiscal year.
- (4) The owner or operator may obtain a one-time extension of the time allowed for submittal of the documents specified in paragraph (F)(3) of this rule if the fiscal year of the owner or operator ends during the ninety days prior to the first effective date of this rule and if the year-end financial statements for that fiscal year will be audited by an independent certified public accountant. The extension will end no later than ninety days after the end of the owner's or operator's fiscal year. To obtain the extension, the owner's or operator's chief financial officer shall send, by the first effective date of this rule, a letter to the director of each U.S. EPA region in which the operator's facilities to be covered by the financial test are located. This letter from the chief financial officer shall:

 - (a) Request the extension;
 - (b) Certify that the chief financial officer has grounds to believe that the owner or operator meets the criteria of the financial test;
 - (c) Specify for each facility to be covered by the test the U.S. EPA identification number, name, address, the amount of liability coverage and, when applicable, current closure and post-closure cost estimates to be covered by the test;
 - (d) Specify the date ending the owner's or operator's last complete fiscal year before the first effective date of this rule;
 - (e) Specify the date, no later than ninety days after the end of such fiscal year, when the chief financial officer will submit the documents specified in paragraph (F)(3) of this rule; and
 - (f) Certify that the year-end financial statements of the owner or operator for such fiscal year will be audited by an independent certified public accountant.

- (5) After the initial submittal of items specified in paragraph (F)(3) of this rule, the owner or operator shall send updated information to the director within ninety days after the close of each succeeding fiscal year. This information shall consist of all three items specified in paragraph (F)(3) of this rule.
- (6) If the owner or operator no longer meets the requirements of paragraph (F)(1) of this rule, the owner or operator shall obtain insurance, a letter of credit, a surety bond, a trust fund, or a guarantee for the entire amount of required liability coverage as specified in this rule. Evidence of liability coverage shall be submitted to the director within ninety days after the end of the fiscal year for which the year-end financial data show that the owner or operator no longer meets the test requirements.
- (7) The director may disallow use of this test on the basis of qualifications in the opinion expressed by the independent certified public accountant in his report on examination of the owner's or operator's financial statements [see paragraph (F)(3)(b) of this rule]. An adverse opinion or a disclaimer of opinion will be cause for disallowance. The director will evaluate other qualifications on an individual basis. The owner or operator shall provide evidence of insurance for the entire amount of required liability coverage as specified in this rule within thirty days after notification of disallowance.

(G) Guarantee for liability coverage.

- (1) Subject to paragraph (G)(2) of this rule, an owner or operator may meet the requirements of this rule by obtaining a written guarantee, hereinafter referred to as "guarantee." The guarantor shall be the direct or higher-tier parent corporation of the owner or operator, a firm whose parent corporation is also the parent corporation of the owner or operator, or a firm with a "substantial business relationship" with the owner or operator. The guarantor shall meet the requirements for owners or operators in paragraphs (F)(1) to (F)(6) of this rule. The wording of the guarantee shall be identical to the wording specified in paragraph (G)(2) of rule 3745-51-151 of the Administrative Code. A certified copy of the guarantee shall accompany the items sent to the director as specified in paragraph (F)(3) of this rule. One of these items shall be the letter from the guarantor's chief financial officer. If the guarantor's parent corporation is also the parent corporation of the owner or operator, this letter shall describe the value received in consideration of the guarantee. If the guarantor is a firm with a "substantial business relationship" with the owner or operator, this letter shall describe this "substantial business relationship" and the value received in consideration of the guarantee.

(a) If the owner or operator fails to satisfy a judgment based on a determination of liability for bodily injury or property damage to third parties caused by sudden or non-sudden accidental occurrences (or both as the case may be), arising from the operation of facilities covered by this corporate guarantee, or fails to pay an amount agreed to in settlement of claims arising from or alleged to arise from such injury or damage, the guarantor will do so up to the limits of coverage.

(b) [Reserved.]

(2)

(a) In the case of corporations incorporated in the United States, a guarantee may be used to satisfy the requirements of this rule only if the "Attorneys General" or "Insurance Commissioners" of:

(i) The state in which the guarantor is incorporated; and

(ii) Each state in which a facility covered by the guarantee is located have submitted a written statement to Ohio EPA that a guarantee executed as described in this rule and in paragraph (G)(2) of rule 3745-55-51 of the Administrative Code is a legally valid and enforceable obligation in that state.

(b) In the case of corporations incorporated outside the United States, a guarantee may be used to satisfy the requirements of this rule only if:

(i) The non-U.S. corporation has identified a registered agent for service of process in each state in which a facility covered by the guarantee is located and in the state in which the non-U.S. corporation has its principal place of business; and if

(ii) The attorney general or insurance commissioner of each state in which a facility covered by the guarantee is located and the state in which the guarantor corporation has its principal place of business, has submitted a written statement to Ohio EPA that a guarantee executed as described in this rule and paragraph (H)(2) of rule 3745-51-151 of the Administrative Code is a legally valid and enforceable obligation in that state.

(H) Letter of credit for liability coverage.

- (1) An owner or operator may satisfy the requirements of this rule by obtaining an irrevocable standby letter of credit that conforms to the requirements of this paragraph and submitting a copy of the letter of credit to the director.
- (2) The financial institution issuing the letter of credit shall be an entity that has the authority to issue letters of credit and whose letter of credit operations are regulated and examined by a federal or state agency.
- (3) The wording of the letter of credit shall be identical to the wording specified in paragraph (J) of rule 3745-51-151 of the Administrative Code.
- (4) An owner or operator who uses a letter of credit to satisfy the requirements of this rule may also establish a standby trust fund. Under the terms of such a letter of credit, all amounts paid pursuant to a draft by the trustee of the standby trust will be deposited by the issuing institution into the standby trust in accordance with instructions from the trustee. The trustee of the standby trust fund shall be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency.
- (5) The wording of the standby trust fund shall be identical to the wording specified in paragraph (M) of rule 3745-51-151 of the Administrative Code.

(I) Surety bond for liability coverage.

- (1) An owner or operator may satisfy the requirements of this rule by obtaining a surety bond that conforms to the requirements of this paragraph and submitting a copy of the bond to the director.
- (2) The surety company issuing the bond shall be among those listed as acceptable sureties on federal bonds in the most recent "Circular 570" of the U.S. department of the treasury.
- (3) The wording of the surety bond shall be identical to the wording specified in paragraph (K) of rule 3745-51-151 of the Administrative Code.
- (4) A surety bond may be used to satisfy the requirements of this rule only if the attorneys general or insurance commissioners of:
 - (a) The state in which the surety is incorporated; and
 - (b) Each state in which a facility covered by the surety bond is located have submitted a written statement to Ohio EPA that a surety bond executed as described in this rule and in paragraph (K) of rule 3745-51-151 of the

Administrative Code is a legally valid and enforceable obligation in that state.

(J) Trust fund for liability coverage.

- (1) An owner or operator may satisfy the requirements of this rule by establishing a trust fund that conforms to the requirements of this paragraph and submitting an originally signed duplicate of the trust agreement to the director.
- (2) The trustee shall be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency.
- (3) The trust fund for liability coverage shall be funded for the full amount of the liability coverage to be provided by the trust fund before the trust fund may be relied upon to satisfy the requirements of this rule. If at any time after the trust fund is created the amount of funds in the trust fund is reduced below the full amount of the liability coverage to be provided, the owner or operator, by the anniversary date of the establishment of the trust fund, shall either add sufficient funds to the trust fund to cause the value of the trust fund to equal the full amount of liability coverage to be provided, or obtain other financial assurance as specified in this rule to cover the difference. For purposes of this paragraph, "the full amount of the liability coverage to be provided" means the amount of coverage for sudden or non-sudden occurrences required to be provided by the owner or operator by this rule, less the amount of financial assurance for liability coverage that is being provided by other financial assurance mechanisms being used to demonstrate financial assurance by the owner or operator.
- (4) The wording of the trust fund shall be identical to the wording specified in paragraph (L) of rule 3745-51-151 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."]

Effective: 6/12/2023

Five Year Review (FYR) Dates: Exempt

CERTIFIED ELECTRONICALLY

Certification

06/02/2023

Date

Promulgated Under: 119.03
Statutory Authority: 3734.12
Rule Amplifies: 3734.12

3745-51-148

Incapacity of owners or operators, guarantors, or financial institutions - management of excluded hazardous secondary materials.

(A) An owner or operator shall notify the director by certified mail of the commencement of a voluntary or involuntary proceeding under Title 11 (bankruptcy), U.S. Code, naming the owner or operator as debtor, within ten days after commencement of the proceeding. A guarantor of a corporate guarantee as specified in paragraph (E) of rule 3745-51-143 of the Administrative Code shall make such a notification if he is named as debtor, as required under the terms of the corporate guarantee.

(B) An owner or operator who fulfills the requirements of rule 3745-51-143 or 3745-51-147 of the Administrative Code by obtaining a trust fund, surety bond, letter of credit, or insurance policy will be deemed to be without the required financial assurance or liability coverage in the event of bankruptcy of the trustee or issuing institution, or a suspension or revocation of the authority of the trustee institution to act as trustee or of the institution issuing the surety bond, letter of credit, or insurance policy to issue such instruments. The owner or operator shall establish other financial assurance or liability coverage within sixty days after such an event.

[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."]

Effective: 6/12/2023

Five Year Review (FYR) Dates: Exempt

CERTIFIED ELECTRONICALLY

Certification

06/02/2023

Date

Promulgated Under: 119.03
Statutory Authority: 3734.12
Rule Amplifies: 3734.12

3745-51-151**Wording of the instruments - management of excluded hazardous secondary materials.**(A)

- (1) A trust agreement for a trust fund, as specified in paragraph (A) of rule 3745-51-143 of the Administrative Code shall be ordered as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

"Trust Agreement

Trust Agreement, the "Agreement," entered into as of [date] by and between [name of the owner or operator], a [name of state] [insert "corporation," "partnership," "association," or "proprietorship"], the "Grantor," and [name of corporate trustee], [insert "incorporated in the state of -----" or "a national bank"], the "Trustee."

Whereas, the United States Environmental Protection Agency, "U.S. EPA," an agency of the United States government, has established certain rules applicable to the Grantor, requiring that an owner or operator of a facility regulated under Chapters 3745-54 to 3745-57 and 3745-205 or Chapters 3745-65 to 3745-69 and 3745-256 of the Administrative Code, or satisfying the conditions of the exclusion under paragraph (A)(24) of rule 3745-51-04 of the Administrative Code shall provide assurance that funds will be available if needed for care of the facility under rules 3745-55-10 to 3745-55-20 of the Administrative Code or rules 3745-66-10 to 3745-66-21 of the Administrative Code, as applicable,

Whereas, the Grantor has elected to establish a trust to provide all or part of such financial assurance for the facilities identified herein,

Whereas, the Grantor, acting through the Guarantor's duly authorized officers, has selected the Trustee to be the trustee under this agreement, and the Trustee is willing to act as trustee,

Now, Therefore, the Grantor and the Trustee agree as follows:

Section 1. Definitions. As used in this Agreement:

(a) The term "Grantor" means the owner or operator who enters into this Agreement and any successors or assigns of the Grantor.

(b) The term "Trustee" means the Trustee who enters into this Agreement and any successor Trustee.

Section 2. Identification of Facilities and Cost Estimates. This Agreement pertains to the facilities and cost estimates identified on attached Schedule A [on Schedule A, for each facility list the U.S. EPA identification number (if available), name, address, and the current cost estimates, or portions thereof, for which financial assurance is demonstrated by this Agreement].

Section 3. Establishment of Fund. The Grantor and the Trustee hereby establish a trust fund, the "Fund," for the benefit of Ohio EPA in the event that the hazardous secondary materials of the grantor no longer meet the conditions of the exclusion under paragraph (A)(24) of rule 3745-51-04 of the Administrative Code. The Grantor and the Trustee intend that no third party have access to the Fund except as herein provided. The Fund is established initially as consisting of the property, which is acceptable to the Trustee, described in Schedule B attached hereto. Such property and any other property subsequently transferred to the Trustee is referred to as the Fund, together with all earnings and profits thereon, less any payments or distributions made by the Trustee pursuant to this Agreement. The Fund shall be held by the Trustee, IN TRUST, as hereinafter provided. The Trustee shall not be responsible nor shall the Trustee undertake any responsibility for the amount or adequacy of, nor any duty to collect from the Grantor, any payments necessary to discharge any liabilities of the Grantor established by Ohio EPA.

Section 4. Payments from the Fund. The Trustee shall make payments from the Fund as the director shall direct, in writing, to provide for the payment of the costs of the performance of activities required under rules 3745-55-10 to 3745-55-20 of the Administrative Code or rules 3745-66-10 to 3745-66-21 of the Administrative Code for the facilities covered by this Agreement. The Trustee shall reimburse the Grantor or other persons as specified by the director from the Fund for expenditures for such activities in such amounts as the beneficiary shall direct in writing. In addition, the Trustee shall refund to the Grantor such amounts as the director specifies in writing. Upon refund, such funds shall no longer constitute part of the Fund as defined herein.

Section 5. Payments Comprising the Fund. Payments made to the Trustee for the Fund shall consist of cash or securities acceptable to the Trustee.

Section 6. Trustee Management. The Trustee shall invest and reinvest the principal and income of the Fund and keep the Fund invested as a single fund, without distinction between principal and income, in accordance with general investment policies and guidelines which the Grantor may communicate in writing to the Trustee from time to time, subject, however, to the provisions of this section. In investing, reinvesting, exchanging, selling, and managing the Fund, the Trustee shall discharge his duties with respect to the trust fund solely

in the interest of the beneficiary and with the care, skill, prudence, and diligence under the circumstances then prevailing which persons of prudence, acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims; except that:

(a) Securities or other obligations of the Grantor, or any other owner or operator of the facilities, or any of their affiliates as defined in the Investment Company Act of 1940, shall not be acquired or held, unless they are securities or other obligations of the federal or a state government;

(b) The Trustee is authorized to invest the Fund in time or demand deposits of the Trustee, to the extent insured by an agency of the federal or state government; and

(c) The Trustee is authorized to hold cash awaiting investment or distribution uninvested for a reasonable time and without liability for the payment of interest thereon.

Section 7. Commingling and Investment. The Trustee is expressly authorized in its discretion:

(a) To transfer from time to time any or all of the assets of the Fund to any common, commingled, or collective trust fund created by the Trustee in which the Fund is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein; and

(b) To purchase shares in any investment company registered under the Investment Company Act of 1940, including one which may be created, managed, underwritten, or to which investment advice is rendered or the shares of which are sold by the Trustee. The Trustee may vote such shares in its discretion.

Section 8. Express Powers of Trustee. Without in any way limiting the powers and discretions conferred upon the Trustee by the other provisions of this Agreement or by law, the Trustee is expressly authorized and empowered:

(a) To sell, exchange, convey, transfer, or otherwise dispose of any property held by it, by public or private sale. No person dealing with the Trustee shall be bound to see to the application of the purchase money or to inquire into the validity or expediency of any such sale or other disposition;

(b) To make, execute, acknowledge, and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(c) To register any securities held in the Fund in its own name or in the name of a nominee and to hold any security in bearer form or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the Trustee in other fiduciary capacities, or to deposit or arrange for the deposit of such securities in a qualified central depository even though, when so deposited, such securities may be merged and held in bulk in the name of the nominee of such depository with other securities deposited therein by another person, or to deposit or arrange for the deposit of any securities issued by the United States government, or any agency or instrumentality thereof, with a Federal Reserve bank, but the books and records of the Trustee shall at all times show that all such securities are part of the Fund;

(d) To deposit any cash in the Fund in interest-bearing accounts maintained or savings certificates issued by the Trustee, in its separate corporate capacity, or in any other banking institution affiliated with the Trustee, to the extent insured by an agency of the federal or state government; and

(e) To compromise or otherwise adjust all claims in favor of or against the Fund.

Section 9. Taxes and Expenses. All taxes of any kind that may be assessed or levied against or in respect of the Fund and all brokerage commissions incurred by the Fund shall be paid from the Fund. All other expenses incurred by the Trustee in connection with the administration of this Trust, including fees for legal services rendered to the Trustee, the compensation of the Trustee to the extent not paid directly by the Grantor, and all other proper charges and disbursements of the Trustee shall be paid from the Fund.

Section 10. Annual Valuation. The Trustee shall annually, at least thirty days prior to the anniversary date of establishment of the Fund, furnish to the Grantor and to the appropriate director a statement confirming the value of the Trust. Any securities in the Fund shall be valued at market value as of no more than sixty days prior to the anniversary date of establishment of the Fund. The failure of the Grantor to object in writing to the Trustee within ninety days after the statement has been furnished to the Grantor and the director shall constitute a conclusively binding assent by the Grantor, barring the Grantor from asserting any claim or liability against the Trustee with respect to matters disclosed in the statement.

Section 11. Advice of Counsel. The Trustee may from time to time consult with counsel, who may be counsel to the Grantor, with respect to any question arising as to the construction of this Agreement or any action to be taken hereunder. The Trustee shall be fully protected, to the extent permitted by law, in acting upon the advice of counsel.

Section 12. Trustee Compensation. The Trustee shall be entitled to reasonable compensation for its services as agreed upon in writing from time to time with the Grantor.

Section 13. Successor Trustee. The Trustee may resign or the Grantor may replace the Trustee, but such resignation or replacement shall not be effective until the Grantor has appointed a successor trustee and this successor accepts the appointment. The successor trustee shall have the same powers and duties as those conferred upon the Trustee hereunder. Upon the successor trustee's acceptance of the appointment, the Trustee shall assign, transfer, and pay over to the successor trustee the funds and properties then constituting the Fund. If for any reason the Grantor cannot or does not act in the event of the resignation of the Trustee, the Trustee may apply to a court of competent jurisdiction for the appointment of a successor trustee or for instructions. The successor trustee shall specify the date on which the successor trustee assumes administration of the trust in a writing sent to the Grantor, the director, and the present Trustee by certified mail ten days before such change becomes effective. Any expenses incurred by the Trustee as a result of any of the acts contemplated by this Section shall be paid as provided in Section 9.

Section 14. Instructions to the Trustee. All orders, requests, and instructions by the Grantor to the Trustee shall be in writing, signed by such persons as are designated in the attached Exhibit A or such other designees as the Grantor may designate by amendment to Exhibit A. The Trustee shall be fully protected in acting without inquiry in accordance with the Grantor's orders, requests, and instructions. All orders, requests, and instructions by the director to the Trustee shall be in writing, signed by the director of the Regions in which the facilities are located, or their designees, and the Trustee shall act and shall be fully protected in acting in accordance with such orders, requests, and instructions. The Trustee shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to act on behalf of the Grantor or Ohio EPA hereunder has occurred. The Trustee shall have no duty to act in the absence of such orders, requests, and instructions from the Grantor or Ohio EPA, except as provided for herein.

Section 15. Amendment of Agreement. This Agreement may be amended by an instrument in writing executed by the Grantor, the Trustee, and the appropriate director, or by the Trustee and the appropriate director if the Grantor ceases to exist.

Section 16. Irrevocability and Termination. Subject to the right of the parties to amend this Agreement as provided in Section 16, this Trust shall be irrevocable and shall continue until terminated at the written agreement of the Grantor, the

Trustee, and the director, or by the Trustee and the director, if the Grantor ceases to exist. Upon termination of the Trust, all remaining trust property, less final trust administration expenses, shall be delivered to the Grantor.

Section 17. Immunity and Indemnification. The Trustee shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this Trust, or in carrying out any directions by the Grantor or the EPA director issued in accordance with this Agreement. The Trustee shall be indemnified and saved harmless by the Grantor or from the Trust Fund, or both, from and against any personal liability to which the Trustee may be subjected by reason of any act or conduct in its official capacity, including all expenses reasonably incurred in its defense in the event the Grantor fails to provide such defense.

Section 18. Choice of Law. This Agreement shall be administered, construed, and enforced according to the laws of the state of [insert name of state].

Section 19. Interpretation. As used in this Agreement, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each Section of this Agreement shall not affect the interpretation or the legal efficacy of this Agreement.

In Witness Whereof the parties have caused this Agreement to be executed by their respective officers duly authorized and their corporate seals to be hereunto affixed and attested as of the date first above written: The parties below certify that the wording of this Agreement is identical to the wording specified in paragraph (A)(1) of rule 3745-51-151 of the Administrative Code as such rules were constituted on the date first above written.

[Signature of Grantor]

[Title]

Attest:

[Title]

[Seal]

[Signature of Trustee]

Attest:

[Title]

[Seal]"

(2) The following is an example of the certification of acknowledgment which shall accompany the trust agreement for a trust fund as specified in paragraph (A) of rule 3745-51-143 of the Administrative Code.

"State of:

County of:

On this [date], before me personally came [owner or operator] to me known, who, being by me duly sworn, did depose and say that she/he resides at [address], that she/he is [title] of [corporation], the corporation described in and which executed the above instrument; that she/he knows the seal of said corporation; that the seal affixed to such instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation, and that she/he signed her/his name thereto by like order.

[Signature of Notary Public]"

(B) A surety bond guaranteeing payment into a trust fund, as specified in paragraph (B) of rule 3745-51-143 of the Administrative Code, shall be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

"Financial Guarantee Bond

Date bond executed:

Effective date:

Principal: [legal name and business address of owner or operator]

Type of Organization: [insert "individual," "joint venture," "partnership," or "corporation"]

State of incorporation:

Surety(ies): [name(s) and business address(es)]

U.S. EPA identification number, name, address and amount(s) for each facility guaranteed by this bond:

Total penal sum of bond: \$

Surety's bond number:

Know All Persons By These Presents, That we, the Principal and Surety(ies) are firmly bound to U.S. EPA in the event that the hazardous secondary materials at the reclamation or intermediate facility listed below no longer meet the conditions of the exclusion under paragraph (A)(24) of rule 3745-51-04 of the Administrative Code in the above penal sum for the payment of which we bind ourselves, our heirs, executors, administrators, successors, and assigns jointly and severally; provided that, where the Surety(ies) are corporations acting as co-sureties, we, the Sureties, bind ourselves in such sum "jointly and severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sum only as is set forth opposite the name of such Surety, but if no limit of liability is indicated, the limit of liability shall be the full amount of the penal sum.

Whereas said Principal is required, under the Resource Conservation and Recovery Act as amended (RCRA), to have a permit or interim status in order to own or operate each facility identified above, or to meet conditions under paragraph (A)(24) of rule 3745-51-04 of the Administrative Code, and

Whereas said Principal is required to provide financial assurance as a condition of permit or interim status or as a condition of an exclusion under paragraph (A)(24) of rule 3745-51-04 of the Administrative Code, and

Whereas said Principal shall establish a standby trust fund as is required when a surety bond is used to provide such financial assurance;

Now, Therefore, the conditions of the obligation are such that if the Principal shall faithfully, before the beginning of final closure of each facility identified above, fund the standby trust fund in the amount(s) identified above for the facility,

Or, if the Principal shall satisfy all the conditions established for exclusion of hazardous secondary materials from coverage as waste under paragraph (A)(24) of rule 3745-51-04 of the Administrative Code,

Or, if the Principal shall fund the standby trust fund in such amount(s) within fifteen days after a final order to begin closure is issued by a director or a U.S. district court or other court of competent jurisdiction,

Or, if the Principal shall provide alternate financial assurance, as specified in rules 3745-51-140 to 3745-51-151 of the Administrative Code, as applicable, and obtain the director's written approval of such assurance, within ninety days after the date notice of cancellation is received by both the Principal and the directors from

the Surety(ies), then this obligation shall be null and void; otherwise the financial assurance is to remain in full force and effect.

The Surety(ies) shall become liable on this bond obligation only when the Principal has failed to fulfill the conditions described above. Upon notification by a director that the Principal has failed to perform as guaranteed by this bond, the Surety(ies) shall place funds in the amount guaranteed for the facility(ies) into the standby trust fund as directed by the director.

The liability of the Surety(ies) shall not be discharged by any payment or succession of payments hereunder, unless and until such payment or payments shall amount in the aggregate to the penal sum of the bond, but in no event shall the obligation of the Surety(ies) hereunder exceed the amount of said penal sum.

The Surety(ies) may cancel the bond by sending notice of cancellation by certified mail to the Principal and to the director(s) for the U.S. EPA Region(s) in which the facility(ies) is (are) located, provided, however, that cancellation shall not occur during the one hundred twenty days beginning on the date of receipt of the notice of cancellation by both the Principal and the director(s), as evidenced by the return receipts.

The Principal may terminate this bond by sending written notice to the Surety(ies), provided, however, that no such notice shall become effective until the Surety(ies) receive(s) written authorization for termination of the bond by the director(s) of the U.S. EPA Region(s) in which the bonded facility(ies) is (are) located.

[The following paragraph is an optional rider that may be included but is not required.]

Principal and Surety(ies) hereby agree to adjust the penal sum of the bond yearly so that it guarantees a new amount, provided that the penal sum does not increase by more than twenty per cent in any one year, and no decrease in the penal sum takes place without the written permission of the director(s).

In Witness Whereof, the Principal and Surety(ies) have executed this Financial Guarantee Bond and have affixed their seals on the date set forth above.

The persons whose signatures appear below hereby certify that they are authorized to execute this surety bond on behalf of the Principal and Surety(ies) and that the wording of this surety bond is identical to the wording specified in paragraph (B) of rule 3745-51-151 of the Administrative Code as such rules were constituted on the date this bond was executed.

Principal

[Signature(s)]

[Name(s)]

[Title(s)]

[Corporate seal]

Corporate Surety(ies)

[Name and address]

State of incorporation:

Liability limit: \$-----

[Signature(s)]

[Name(s) and title(s)]

[Corporate seal]

[For every co-surety, provide signature(s), corporate seal, and other information in the same manner as for Surety above.]

Bond premium: \$-----"

(C) A letter of credit, as specified in paragraph (C) of rule 3745-51-142 of the Administrative Code, shall be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

"Irrevocable Standby Letter of Credit

Regional Administrator(s)

Region(s)-----

Irrevocable Standby Letter of Credit

Regional Administrator(s)

Region(s)-----

U.S. Environmental Protection Agency

Dear Sir or Madam: We hereby establish our Irrevocable Standby Letter of Credit No.----- in your favor, in the event that the hazardous secondary materials at the covered reclamation or intermediary facility(ies) no longer meet the conditions of the exclusion under paragraph (A)(24) of rule 3745-51-04 of the Administrative Code, at the request and for the account of [owner's or operator's name and address] up to the aggregate amount of [in words] U.S. dollars \$-----, available upon presentation of

(1) your sight draft, bearing reference to this letter of credit No.----, and

(2) your signed statement reading as follows: "I certify that the amount of the draft is payable pursuant to regulations issued under authority of the Resource Conservation and Recovery Act of 1976."

This letter of credit is effective as of [date] and shall expire on [date at least one year later], but such expiration date shall be automatically extended for a period of [at least one year] on [date] and on each successive expiration date, unless, at least one hundred twenty days before the current expiration date, we notify both you and [owner's or operator's name] by certified mail that we have decided not to extend this letter of credit beyond the current expiration date. In the event you are so notified, any unused portion of the credit shall be available upon presentation of your sight draft for one hundred twenty days after the date of receipt by both you and [owner's or operator's name], as shown on the signed return receipts.

Whenever this letter of credit is drawn on under and in compliance with the terms of this credit, we shall duly honor such draft upon presentation to us, and we shall deposit the amount of the draft directly into the standby trust fund of [owner's or operator's name] in accordance with your instructions.

We certify that the wording of this letter of credit is identical to the wording specified in paragraph (C) of rule 3745-51-151 of the Administrative Code as such rules were constituted on the date shown immediately below.

[Signature(s) and title(s) of official(s) of issuing institution]

[Date]

This credit is subject to [insert "the most recent edition of the Uniform Customs and Practice for Documentary Credits, published and copyrighted by the International Chamber of Commerce," or "the Uniform Commercial Code"]."

(D) A certificate of insurance, as specified in paragraph (E) of rule 3745-51-143 of the Administrative Code, shall be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

"Certificate of Insurance

Name and Address of Insurer (herein called the "Insurer"):

Name and Address of Insured (herein called the "Insured"):

Facilities Covered: [List for each facility: The U.S. EPA identification number (if any issued), name, address, and the amount of insurance for all facilities covered, which shall total the face amount shown below.

Face Amount:-----

Policy Number:-----

Effective Date:-----

The Insurer hereby certifies that it has issued to the Insured the policy of insurance identified above to provide financial assurance so that in accordance with applicable rules all hazardous secondary materials can be removed from the facility or any unit at the facility and the facility or any unit at the facility can be decontaminated at the facilities identified above. The Insurer further warrants that such policy conforms in all respects with the requirements of paragraph (D) of rule 3745-51-143 of the Administrative Code as applicable and as such rules were constituted on the date shown immediately below. It is agreed that any provision of the policy inconsistent with such rules is hereby amended to eliminate such inconsistency.

Whenever requested by the director(s) of the U.S. Environmental Protection Agency, the Insurer agrees to furnish to the director(s) a duplicate original of the policy listed above, including all endorsements thereon.

I hereby certify that the wording of this certificate is identical to the wording specified in paragraph (D) of rule 3745-51-151 of the Administrative Code such rules were constituted on the date shown immediately below.

[Authorized signature for Insurer]

[Name of person signing]

[Title of person signing]

Signature of witness or notary:-----

[Date]"

(E) A letter from the chief financial officer, as specified in paragraph (E) of rule 3745-51-143 of the Administrative Code, shall be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

"Letter From Chief Financial Officer

[Address to director of every Region in which facilities for which financial responsibility is to be demonstrated through the financial test are located].

I am the chief financial officer of [name and address of firm]. This letter is in support of this firm's use of the financial test to demonstrate financial assurance, as specified in rules 3745-51-140 to 3745-51-151 of the Administrative Code.

[Fill out the following nine paragraphs regarding facilities and associated cost estimates. If your firm has no facilities that belong in a particular paragraph, write "None" in the space indicated. For each facility, include its U.S. EPA identification number (if any issued), name, address, and current cost estimates.]

1. This firm is the owner or operator of the following facilities for which financial assurance is demonstrated through the financial test specified in rules 3745-51-140 to 3745-51-151 of the Administrative Code. The current cost estimates covered by the test are shown for each facility: ----- .

2. This firm guarantees, through the guarantee specified in rules 3745-51-140 to 3745-51-151 of the Administrative Code, the following facilities owned or operated by the guaranteed party. The current cost estimates so guaranteed are shown for each facility: ----- . The firm identified above is [insert one or more: (1) The direct or higher-tier parent corporation of the owner or operator; (2) owned by the same parent corporation as the parent corporation of the owner or operator, and receiving the following value in consideration of this guarantee-----, or (3) engaged in the following substantial business relationship with the owner or operator -----, and receiving the following value in consideration of this guarantee-----]. [Attach a written description of the business relationship or a copy of the contract establishing such relationship to this letter].

3. In states where U.S. EPA is not administering the financial requirements rules 3745-51-140 to 3745-51-151 of the Administrative Code, this firm, as owner or operator or guarantor, is demonstrating financial assurance for the following facilities through the use of a test equivalent or substantially equivalent to the financial test specified in rules 3745-51-140 to 3745-51-151 of the Administrative Code . The current cost estimates covered by such a test are shown for each facility:-----.

4. This firm is the owner or operator of the following hazardous secondary materials management facilities for which financial assurance is not demonstrated either to U.S. EPA or a state through the financial test or any other financial assurance mechanism specified in rules 3745-51-140 to 3745-51-151 of the Administrative Code or equivalent or substantially equivalent state mechanisms. The current cost estimates not covered by such financial assurance are shown for each facility:-----.

5. This firm is the owner or operator of the following underground injection control facilities for which financial assurance for plugging and abandonment is required under Chapter 3745-34 of the Administrative Code. The current closure cost estimates as required by Chapter 3745-34 of the Administrative Code are shown for each facility:-----.

6. This firm is the owner or operator of the following facilities for which financial assurance for closure or post-closure care is demonstrated through the financial test specified in rules 3745-55-40 to 3745-55-51 of the Administrative Code and rules 3745-66-40 to 3745-66-48 of the Administrative Code. The current closure or post-closure cost estimates covered by the test are shown for each facility: ----- .

7. This firm guarantees, through the guarantee specified in rules 3745-55-40 to 3745-55-51 of the Administrative Code and rules 3745-66-40 to 3745-66-48 of the Administrative Code, the closure or post-closure care of the following facilities owned or operated by the guaranteed party. The current cost estimates for the closure or post-closure care so guaranteed are shown for each facility: -----. The firm identified above is [insert one or more: (1) The direct or higher-tier parent corporation of the owner or operator; (2) owned by the same parent corporation as the parent corporation of the owner or operator, and receiving the following value in consideration of this guarantee -----; or (3) engaged in the following substantial business relationship with the owner or operator ----, and receiving the following value in consideration of this guarantee ----]. [Attach a written description of the business relationship or a copy of the contract establishing such relationship to this letter].

In states where U.S. EPA is not administering the financial requirements of rules 3745-55-40 to 3745-55-51 of the Administrative Code or rules 3745-66-40 to 3745-66-48 of the Administrative Code, this firm, as owner or operator or guarantor, is demonstrating financial assurance for the closure or post-closure care of the following facilities through the use of a test equivalent or substantially equivalent to the financial test specified in rules 3745-55-40 to 3745-55-51 of the Administrative Code and rules 3745-66-40 to 3745-66-48 of the Administrative Code. The current closure or post-closure cost estimates covered by such a test are shown for each facility: ----.

This firm is the owner or operator of the following hazardous waste management facilities for which financial assurance for closure or, if a disposal facility, post-closure care, is not demonstrated either to U.S. EPA or a state through the financial test or any other financial assurance mechanism specified in rules 3745-55-40 to 3745-55-51 of the Administrative Code and rules 3745-66-40 to 3745-66-48 of the Administrative Code or equivalent or substantially equivalent state mechanisms. The current closure or post-closure cost estimates not covered by such financial assurance are shown for each facility: ----.

This firm [insert "is required" or "is not required"] to file a Form 10K with the securities and exchange commission for the latest fiscal year.

The fiscal year of this firm ends on [month, day]. The figures for the following items marked with an asterisk are derived from this firm's independently audited, year-end financial statements for the latest completed fiscal year, ended [date].

[Fill in Alternative I if the criteria of paragraph (E)(1)(i) of rule 3745-51-143 of the Administrative Code are used. Fill in Alternative II if the criteria of paragraph (E)(1)(ii) of rule 3745-51-143 of the Administrative Code are used.]

Alternative I

1. Sum of current cost estimates [total of all cost estimates shown in the nine paragraphs above] \$----

*2. Total liabilities [if any portion of the cost estimates is included in total liabilities, you may deduct the amount of that portion from this line and add that amount to lines 3 and 4] \$----

*3. Tangible net worth \$-----

*4. Net worth \$-----

*5. Current assets \$-----

*6. Current liabilities \$-----

*7. Net working capital [line 5 minus line 6] \$-----

*8. The sum of net income plus depreciation, depletion, and amortization \$-----

*9. Total assets in U.S. (required only if less than 90% of firm's assets are located in the U.S.) \$-----

10. Is line 3 at least \$10 million? (Yes/No) -----

11. Is line 3 at least 6 times line 1? (Yes/No) -----

12. Is line 7 at least 6 times line 1? (Yes/No) -----

*13. Are at least 90% of firm's assets located in the U.S.? If not, complete line 14 (Yes/No) -----

14. Is line 9 at least 6 times line 1? (Yes/No) -----

15. Is line 2 divided by line 4 less than 2.0? (Yes/No) -----

16. Is line 8 divided by line 2 greater than 0.1? (Yes/No) -----

17. Is line 5 divided by line 6 greater than 1.5? (Yes/No) -----

Alternative II

1. Sum of current cost estimates [total of all cost estimates shown in the eight paragraphs above] \$-----

2. Current bond rating of most recent issuance of this firm and name of rating service -----

3. Date of issuance of bond -----

4. Date of maturity of bond -----

*5. Tangible net worth [if any portion of the cost estimates is included in "total liabilities" on your firm's financial statements, you may add the amount of that portion to this line] \$-----

*6. Total assets in U.S. (required only if less than 90% of firm's assets are located in the U.S.) \$-----

7. Is line 5 at least \$10 million? (Yes/No) -----

8. Is line 5 at least 6 times line 1? (Yes/No) -----

*9. Are at least 90% of firm's assets located in the U.S.? If not, complete line 10 (Yes/No) -----

10. Is line 6 at least 6 times line 1? (Yes/No) -----

I hereby certify that the wording of this letter is identical to the wording specified in paragraph (E) of rule 3745-51-151 of the Administrative Code as such rules were constituted on the date shown immediately below.

[Signature]-----
[Name]-----
[Title]-----
[Date]-----"

(F) A letter from the chief financial officer, as specified in paragraph (F) of rule 3745-51-147 of the Administrative Code, shall be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted.

"Letter From Chief Financial Officer

[Address to director of every Region in which facilities for which financial responsibility is to be demonstrated through the financial test are located].

I am the chief financial officer of [firm's name and address]. This letter is in support of the use of the financial test to demonstrate financial responsibility for liability coverage under rule 3745-51-147 of the Administrative Code [insert "and costs assured in paragraph (E) of rule 3745-51-143 of the Administrative Code" if applicable] as specified in rules 3745-51-140 to 3745-51-151 of the Administrative Code.

[Fill out the following paragraphs regarding facilities and liability coverage. If there are no facilities that belong in a particular paragraph, write "None" in the space indicated. For each facility, include its U.S. EPA identification number (if any issued), name, and address].

The firm identified above is the owner or operator of the following facilities for which liability coverage for [insert "sudden" or "non-sudden" or "both sudden and non-sudden"] accidental occurrences is being demonstrated through the financial test specified in rules 3745-51-140 to 3745-51-151 of the Administrative Code:-----

The firm identified above guarantees, through the guarantee specified in rules 3745-51-140 to 3745-51-151 of the Administrative Code, liability coverage for [insert "sudden" or "non-sudden" or "both sudden and non-sudden"] accidental occurrences at the following facilities owned or operated by the following: -----.
The firm identified above is [insert one or more: (1) The direct or higher-tier parent corporation of the owner or operator; (2) owned by the same parent corporation as the parent corporation of the owner or operator, and receiving the following value in

consideration of this guarantee -----; or (3) engaged in the following substantial business relationship with the owner or operator -----, and receiving the following value in consideration of this guarantee -----]. [Attach a written description of the business relationship or a copy of the contract establishing such relationship to this letter.]

The firm identified above is the owner or operator of the following facilities for which liability coverage for [insert "sudden" or "non-sudden" or "both sudden and non-sudden"] accidental occurrences is being demonstrated through the financial test specified in rules 3745-55-40 to 3745-55-51 of the Administrative Code and rules 3745-66-40 to 3745-66-48 of the Administrative Code:-----

The firm identified above guarantees, through the guarantee specified in rules 3745-55-40 to 3745-55-51 of the Administrative Code and rules 3745-66-40 to 3745-66-48 of the Administrative Code, liability coverage for [insert "sudden" or "non-sudden" or "both sudden and non-sudden"] accidental occurrences at the following facilities owned or operated by the following: ----. The firm identified above is [insert one or more: (1) The direct or higher-tier parent corporation of the owner or operator; (2) owned by the same parent corporation as the parent corporation of the owner or operator, and receiving the following value in consideration of this guarantee ----; or (3) engaged in the following substantial business relationship with the owner or operator ----, and receiving the following value in consideration of this guarantee ----]. [Attach a written description of the business relationship or a copy of the contract establishing such relationship to this letter.]

[If you are using the financial test to demonstrate coverage of both liability and costs assured under paragraph (E) of rule 3745-51-143 of the Administrative Code or closure or post-closure care costs under rules 3745-55-43, 3745-55-45, 3745-66-43, or 3745-66-45 of the Administrative Code, fill in the following nine paragraphs regarding facilities and associated cost estimates. If there are no facilities that belong in a particular paragraph, write "None" in the space indicated. For each facility, include the facility's U.S. EPA identification number (if any issued), name, address, and current cost estimates.]

1. This firm is the owner or operator of the following facilities for which financial assurance is demonstrated through the financial test specified in rules 3745-51-140 to 3745-51-151 of the Administrative Code. The current cost estimates covered by the test are shown for each facility:-----.

2. This firm guarantees, through the guarantee specified in rules 3745-51-140 to 3745-51-151 of the Administrative Code, the following facilities owned or operated by the guaranteed party. The current cost estimates so guaranteed are shown for each facility:-----. The firm identified above is [insert one or more: (1) The direct

or higher-tier parent corporation of the owner or operator; (2) owned by the same parent corporation as the parent corporation of the owner or operator, and receiving the following value in consideration of this guarantee-----, or (3) engaged in the following substantial business relationship with the owner or operator -----, and receiving the following value in consideration of this guarantee-----]. [Attach a written description of the business relationship or a copy of the contract establishing such relationship to this letter].

3. In states where U.S. EPA is not administering the financial requirements of rules 3745-51-140 to 3745-51-151 of the Administrative Code, this firm, as owner or operator or guarantor, is demonstrating financial assurance for the following facilities through the use of a test equivalent or substantially equivalent to the financial test specified in rules 3745-51-140 to 3745-51-151 of the Administrative Code. The current cost estimates covered by such a test are shown for each facility:-----.

4. This firm is the owner or operator of the following hazardous secondary materials management facilities for which financial assurance is not demonstrated either to U.S. EPA or a state through the financial test or any other financial assurance mechanism specified in rules 3745-51-140 to 3745-51-151 of the Administrative Code or equivalent or substantially equivalent state mechanisms. The current cost estimates not covered by such financial assurance are shown for each facility:-----.

5. This firm is the owner or operator of the following underground injection control facilities for which financial assurance for plugging and abandonment is required under Chapter 3745-34 of the Administrative Code. The current closure cost estimates as required by Chapter 3745-34 of the Administrative Code are shown for each facility:-----.

6. This firm is the owner or operator of the following facilities for which financial assurance for closure or post-closure care is demonstrated through the financial test specified in rules 3745-55-40 to 3745-55-51 of the Administrative Code and rules 3745-66-40 to 3745-66-48 of the Administrative Code. The current closure or post-closure cost estimates covered by the test are shown for each facility: -----.

7. This firm guarantees, through the guarantee specified in rules 3745-55-40 to 3745-55-51 of the Administrative Code and rules 3745-66-40 to 3745-66-48 of the Administrative Code, the closure or post-closure care of the following facilities owned or operated by the guaranteed party. The current cost estimates for the closure or post-closure care so guaranteed are shown for each facility: -----. The firm identified above is [insert one or more: (1) The direct or higher-tier parent corporation of the owner or operator; (2) owned by the same parent corporation as the parent corporation of the owner or operator, and receiving the following value in consideration of this guarantee -----; or (3) engaged in the following substantial

business relationship with the owner or operator -----, and receiving the following value in consideration of this guarantee -----].

[Attach a written description of the business relationship or a copy of the contract establishing such relationship to this letter].

8. In states where U.S. EPA is not administering the financial requirements of rules 3745-55-40 to 3745-55-51 of the Administrative Code or rules 3745-66-40 to 3745-66-48 of the Administrative Code, this firm, as owner or operator or guarantor, is demonstrating financial assurance for the closure or post-closure care of the following facilities through the use of a test equivalent or substantially equivalent to the financial test specified in rules 3745-55-40 to 3745-55-51 of the Administrative Code and rules 3745-66-40 to 3745-66-48 of the Administrative Code. The current closure or post-closure cost estimates covered by such a test are shown for each facility: -----.

9. This firm is the owner or operator of the following hazardous waste management facilities for which financial assurance for closure or, if a disposal facility, post-closure care, is not demonstrated either to U.S. EPA or a state through the financial test or any other financial assurance mechanism specified in rules 3745-55-40 to 3745-55-51 of the Administrative Code and rules 3745-66-40 to 3745-66-48 of the Administrative Code or equivalent or substantially equivalent state mechanisms. The current closure or post-closure cost estimates not covered by such financial assurance are shown for each facility: -----.

This firm [insert "is required" or "is not required"] to file a Form 10K with the securities and exchange commission for the latest fiscal year.

The fiscal year of this firm ends on [month, day]. The figures for the following items marked with an asterisk are derived from this firm's independently audited, year-end financial statements for the latest completed fiscal year, ended [date].

Part A. Liability Coverage for Accidental Occurrences

[Fill in Alternative I if the criteria of paragraph (F)(1)(a) of rule 374-51-147 of the Administrative Code are used. Fill in Alternative II if the criteria of paragraph (F)(1)(b) of rule 3745-51-147 of the Administrative Code are used.]

Alternative I

1. Amount of annual aggregate liability coverage to be demonstrated \$-----.

*2. Current assets \$-----.

*3. Current liabilities \$-----.

4. Net working capital (line 2 minus line 3) \$-----.

*5. Tangible net worth \$-----.

*6. If less than 90% of assets are located in the U.S., give total U.S. assets \$-----.

7. Is line 5 at least \$10 million? (Yes/No) -----.

8. Is line 4 at least 6 times line 1? (Yes/No) -----.

9. Is line 5 at least 6 times line 1? (Yes/No) -----.

*10. Are at least 90% of assets located in the U.S.? (Yes/No) -----. If not, complete line 11.

11. Is line 6 at least 6 times line 1? (Yes/No) -----.

Alternative II 1. Amount of annual aggregate liability coverage to be demonstrated \$-----.

2. Current bond rating of most recent issuance and name of rating service -----.

3. Date of issuance of bond -----.

4. Date of maturity of bond -----.

*5. Tangible net worth \$-----.

*6. Total assets in U.S. (required only if less than 90% of assets are located in the U.S.) \$-----.

7. Is line 5 at least \$10 million? (Yes/No) -----.

8. Is line 5 at least 6 times line 1? -----.

9. Are at least 90% of assets located in the U.S.? If not, complete line 10. (Yes/No) -----.

10. Is line 6 at least 6 times line 1? -----.

[Fill in part B if you are using the financial test to demonstrate assurance of both liability coverage and costs assured under paragraph (E) of rule 3745-51-143 of the

Administrative Code or closure or post-closure care costs under rules 3745-55-43, 3745-55-45, 3745-66-43, or 3745-66-45 of the Administrative Code.]

Part B. Facility Care and Liability Coverage

[Fill in Alternative I if the criteria of paragraph (E)(1)(a) of rule 3745-51-143 of the Administrative Code and paragraph (F)(1)(a) of rule 3745-51-147 of the Administrative Code are used. Fill in Alternative II if the criteria of paragraph (E)(1)(ii) of rule 3745-51-143 of the Administrative Code and paragraph (F)(1)(ii) of rule 3745-51-147 of the Administrative Code are used.]

Alternative I

1. Sum of current cost estimates (total of all cost estimates listed above) \$-----

2. Amount of annual aggregate liability coverage to be demonstrated \$-----

3. Sum of lines 1 and 2 \$-----

*4. Total liabilities (if any portion of your cost estimates is included in your total liabilities, you may deduct that portion from this line and add that amount to lines 5 and 6) \$-----

*5. Tangible net worth \$-----

*6. Net worth \$-----

*7. Current assets \$-----

*8. Current liabilities \$-----

9. Net working capital (line 7 minus line 8) \$-----

*10. The sum of net income plus depreciation, depletion, and amortization \$-----

*11. Total assets in U.S. (required only if less than 90% of assets are located in the U.S.) \$-----

12. Is line 5 at least \$10 million? (Yes/No)

13. Is line 5 at least 6 times line 3? (Yes/No)

14. Is line 9 at least 6 times line 3? (Yes/No)

*15. Are at least 90% of assets located in the U.S.? (Yes/No) If not, complete line 16.

16. Is line 11 at least 6 times line 3? (Yes/No)

17. Is line 4 divided by line 6 less than 2.0? (Yes/No) 18. Is line 10 divided by line 4 greater than 0.1? (Yes/No)

19. Is line 7 divided by line 8 greater than 1.5? (Yes/No)

Alternative II

1. Sum of current cost estimates (total of all cost estimates listed above) \$-----

2. Amount of annual aggregate liability coverage to be demonstrated \$-----

3. Sum of lines 1 and 2 \$-----

4. Current bond rating of most recent issuance and name of rating service -----

5. Date of issuance of bond -----

6. Date of maturity of bond -----

*7. Tangible net worth (if any portion of the cost estimates is included in "total liabilities" on your financial statements you may add that portion to this line) \$-----

*8. Total assets in the U.S. (required only if less than 90% of assets are located in the U.S.) \$-----

9. Is line 7 at least \$10 million? (Yes/No)

10. Is line 7 at least 6 times line 3? (Yes/No)

*11. Are at least 90% of assets located in the U.S.? (Yes/No) If not complete line 12.

12. Is line 8 at least 6 times line 3? (Yes/No)

I hereby certify that the wording of this letter is identical to the wording specified in paragraph (F) of rule 3745-51-151 of the Administrative Code as such rules were constituted on the date shown immediately below.

[Signature]-----
[Name]-----
[Title]-----
[Date]-----"

(G)

- (1) A corporate guarantee, as specified in paragraph (E) of rule 3745-51-143 of the Administrative Code shall be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

"Corporate Guarantee for Facility Care

Guarantee made this [date] by [name of guaranteeing entity], a business corporation organized under the laws of the state of [insert name of state], herein referred to as guarantor. This guarantee is made on behalf of the [owner or operator] of [business address], which is [one of the following: "our subsidiary"; "a subsidiary of [name and address of common parent corporation], of which guarantor is a subsidiary"; or "an entity with which guarantor has a substantial business relationship, as defined in paragraph (H) of rule 3745-55-41 of the Administrative Code and paragraph (H) of rule 3745-66-41 of the Administrative Code" to the United States Environmental Protection Agency (U.S. EPA).

Recitals

1. Guarantor meets or exceeds the financial test criteria and agrees to comply with the reporting requirements for guarantors as specified in paragraph (E) of rule 3745-51-143 of the Administrative Code.
2. [Owner or operator] owns or operates the following facility(ies) covered by this guarantee: [List for each facility: U.S. EPA identification number (if any issued), name, and address.
3. "Closure plans" as used below refer to the plans maintained as required by rules 3745-51-140 to 3745-51-151 of the Administrative Code for the care of facilities as identified above.
4. For value received from [owner or operator], guarantor guarantees that in the event of a determination by the director that the hazardous secondary materials at the owner or operator's facility covered by this guarantee do not meet the conditions of the exclusion under paragraph (A)(24) of rule 3745-51-04 of the Administrative Code, the guarantor will dispose of any hazardous secondary material as hazardous waste, and close the facility in accordance with closure requirements in Chapters 3745-54 to 3745-57 and 3745-205 of the Administrative Code or Chapters 3745-65 to 3745-69 and 3745-256 of the Administrative Code, as applicable, or establish a trust fund as specified in paragraph (A) of rule 3745-51-143 of the Administrative Code in the name of the owner or operator in the amount of the current cost estimate.

5. Guarantor agrees that if, at the end of any fiscal year before termination of this guarantee, the guarantor fails to meet the financial test criteria, guarantor shall send within ninety days, by certified mail, notice to the director(s) for the Region(s) in which the facility(ies) is(are) located and to [owner or operator] that the owner or operator intends to provide alternate financial assurance as specified in rules 3745-51-140 to 3745-51-151 of the Administrative Code, as applicable, in the name of [owner or operator]. Within one hundred twenty days after the end of such fiscal year, the guarantor shall establish such financial assurance unless [owner or operator] has done so.

6. The guarantor agrees to notify the director by certified mail, of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming guarantor as debtor, within ten days after commencement of the proceeding.

7. Guarantor agrees that within thirty days after being notified by a director of a determination that guarantor no longer meets the financial test criteria or that the Guarantor is disallowed from continuing as a guarantor, the Guarantor shall establish alternate financial assurance as specified in Chapters 3745-54 to 3745-57 and 3745-205 of the Administrative Code or Chapters 3745-65 to 3745-69 and 3745-256 of the Administrative Code or rules 3745-51-140 to 3745-51-151 of the Administrative Code, as applicable, in the name of [owner or operator] unless [owner or operator] has done so.

8. Guarantor agrees to remain bound under this guarantee notwithstanding any or all of the following: amendment or modification of the closure plan, the extension or reduction of the time of performance, or any other modification or alteration of an obligation of the owner or operator pursuant to Chapters 3745-54 to 3745-57 and 3745-205 of the Administrative Code or Chapters 3745-65 to 3745-69 and 3745-256 of the Administrative Code or rules 3745-51-140 to 3745-51-151 of the Administrative Code.

9. Guarantor agrees to remain bound under this guarantee for as long as [owner or operator] shall comply with the applicable financial assurance requirements of Chapters 3745-54 to 3745-57, 3745-65 to 3745-69, 3745-205, and 3745-256 of the Administrative Code or the financial assurance condition of paragraph (A)(24)(vi)(f) of rule 3745-51-04 of the Administrative Code for the above-listed facilities, except as provided in paragraph 10 of this agreement.

10. [Insert the following language if the guarantor is (a) a direct or higher-tier corporate parent, or (b) a firm whose parent corporation is also the parent corporation of the owner or operator]:

Guarantor may terminate this guarantee by sending notice by certified mail to the director(s) for the Region(s) in which the facility(ies) is(are) located and to [owner or operator], provided that this guarantee may not be terminated unless and until [the owner or operator] obtains, and the director(s) approve(s), alternate coverage complying with rule 3745-51-143 of the Administrative Code.

[Insert the following language if the guarantor is a firm qualifying as a guarantor due to its "substantial business relationship" with the owner or operator]

Guarantor may terminate this guarantee one hundred twenty days after the receipt of notification, through certified mail, by the director(s) for the Region(s) in which the facility(ies) is(are) located and by [the owner or operator].

11. Guarantor agrees that if [owner or operator] fails to provide alternate financial assurance as specified in rules 3745-51-140 to 3745-51-151 or Chapters 3745-54 to 3745-57, 3745-65 to 3745-60, 3745-205, and 3745-256 of the Administrative Code, as applicable, and obtain written approval of such assurance from the director(s) within ninety days after a notice of cancellation by the guarantor is received by a director from guarantor, guarantor shall provide such alternate financial assurance in the name of [owner or operator].

12. Guarantor expressly waives notice of acceptance of this guarantee by the U.S. EPA or by [owner or operator]. Guarantor also expressly waives notice of amendments or modifications of the closure plan and of amendments or modifications of the applicable requirements of rules 3745-51-140 to 3745-51-151 or Chapters 3745-54 to 3745-57, 3745-65 to 3745-60, 3745-205, and 3745-256 of the Administrative Code.

I hereby certify that the wording of this guarantee is identical to the wording specified in paragraph (G)(1) of rule 3745-51-151 of the Administrative Code as such rules were constituted on the date first above written.

Effective date:-----

[Name of guarantor]-----

[Authorized signature for guarantor]-----

[Name of person signing]-----

[Title of person signing]-----

Signature of witness or notary:-----"

- (2) A guarantee, as specified in paragraph (G) of rule 3745-51-147 of the Administrative Code, shall be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

"Guarantee for Liability Coverage

Guarantee made this [date] by [name of guaranteeing entity], a business corporation organized under the laws of [if incorporated within the United States insert "the state of -----" and insert name of state; if incorporated outside the United States insert the name of the country in which incorporated, the principal place of business within the United States, and the name and address of the registered agent in the state of the principal place of business], herein referred to as guarantor. This guarantee is made on behalf of [owner or operator] of [business address], which is one of the following: "our subsidiary;" "a subsidiary of [name and address of common parent corporation], of which guarantor is a subsidiary;" or "an entity with which guarantor has a substantial business relationship, as defined in [either paragraph (H) of rule 3745-55-41 of the Administrative Code or paragraph (H) of rule 3745-66-41 of the Administrative Code]," to any and all third parties who have sustained or may sustain bodily injury or property damage caused by [sudden or non-sudden] accidental occurrences arising from operation of the facility(ies) covered by this guarantee.

Recitals

1. Guarantor meets or exceeds the financial test criteria and agrees to comply with the reporting requirements for guarantors as specified in paragraph (G) of rule 3745-51-147 of the Administrative Code.

2. [Owner or operator] owns or operates the following facility(ies) covered by this guarantee: [List for each facility: U.S. EPA identification number (if any issued), name, and address; and if guarantor is incorporated outside the United States list the name and address of the guarantor's registered agent in each state.] This corporate guarantee satisfies RCRA third-party liability requirements for [insert "sudden" or "non-sudden" or "both sudden and non-sudden"] accidental occurrences in above-named owner or operator facilities for coverage in the amount of [insert dollar amount] for each occurrence and [insert dollar amount] annual aggregate.

3. For value received from [owner or operator], guarantor guarantees to any and all third parties who have sustained or may sustain bodily injury or property damage caused by [sudden or non-sudden] accidental occurrences arising from operations of the facility(ies) covered by this guarantee that in the event that [owner or operator] fails to satisfy a judgment or award based on a determination of liability for bodily injury or property damage to third parties caused by [sudden or non-sudden] accidental occurrences, arising from the operation of the above-named facilities, or fails to pay an amount agreed to in settlement of a claim arising from or alleged to arise from such injury or damage, the guarantor will satisfy such judgment(s), award(s) or settlement agreement(s) up to the limits of coverage identified above.

4. Such obligation does not apply to any of the following:

(a) Bodily injury or property damage for which [insert owner or operator] is obligated to pay damages by reason of the assumption of liability in a contract or agreement. This exclusion does not apply to liability for damages that [insert owner or operator] would be obligated to pay in the absence of the contract or agreement.

(b) Any obligation of [insert owner or operator] under a workers' compensation, disability benefits, or unemployment compensation law or any similar law.

(c) Bodily injury to:

(1) An employee of [insert owner or operator] arising from, and in the course of, employment by [insert owner or operator]; or

(2) The spouse, child, parent, brother, or sister of that employee as a consequence of, or arising from, and in the course of employment by [insert owner or operator]. This exclusion applies:

(A) Whether [insert owner or operator] may be liable as an employer or in any other capacity; and

(B) To any obligation to share damages with or repay another person who pay damages because of the injury to persons identified in paragraphs (1) and (2).

(d) Bodily injury or property damage arising out of the ownership, maintenance, use, or entrustment to others of any aircraft, motor vehicle or watercraft.

(e) Property damage to:

(1) Any property owned, rented, or occupied by [insert owner or operator];

(2) Premises that are sold, given away or abandoned by [insert owner or operator] if the property damage arises out of any part of those premises;

(3) Property loaned to [insert owner or operator];

(4) Personal property in the care, custody or control of [insert owner or operator];

(5) That particular part of real property on which [insert owner or operator] or any contractors or subcontractors working directly or indirectly on behalf of [insert owner or operator] are performing operations, if the property damage arises out of these operations.

5. Guarantor agrees that if, at the end of any fiscal year before termination of this guarantee, the guarantor fails to meet the financial test criteria, guarantor shall send within ninety days, by certified mail, notice to the director[s] for the Region[s] in which the facility[ies] is[are] located and to [owner or operator] that the guarantor intends to provide alternate liability coverage as specified in rule 3745-51-147 of the Administrative Code, as applicable, in the name of [owner or operator]. Within one hundred twenty days after the end of such fiscal year, the guarantor shall establish such liability coverage unless [owner or operator] has done so.

6. The guarantor agrees to notify the director by certified mail of a voluntary or involuntary proceeding under title 11 (Bankruptcy), U.S. Code, naming guarantor as debtor, within ten days after commencement of the proceeding. Guarantor agrees that within thirty days after being notified by a director of a determination that guarantor no longer meets the financial test criteria or that the Guarantor is disallowed from continuing as a guarantor, the Guarantor shall establish alternate liability coverage as specified in rule 3745-51-147 of the Administrative Code in the name of [owner or operator], unless [owner or operator] has done so.

7. Guarantor reserves the right to modify this agreement to take into account amendment or modification of the liability requirements set by rule 3745-51-147 of the Administrative Code, provided that such modification shall become effective only if a director does not disapprove the modification within thirty days of receipt of notification of the modification.

8. Guarantor agrees to remain bound under this guarantee for so long as [owner or operator] shall comply with the applicable requirements of rule 3745-51-147 of the Administrative Code for the above-listed facility(ies), except as provided in paragraph ten of this agreement.

9. [Insert the following language if the guarantor is (a) a direct or higher-tier corporate parent, or (b) a firm whose parent corporation is also the parent corporation of the owner or operator]:

10. Guarantor may terminate this guarantee by sending notice by certified mail to the director(s) for the Region(s) in which the facility(ies) is(are) located and to [owner or operator], provided that this guarantee may not be terminated unless and until [the owner or operator] obtains, and the director(s) approve(s), alternate liability coverage complying with rule 3745-51-147 of the Administrative Code.

[Insert the following language if the guarantor is a firm qualifying as a guarantor due to the firm's "substantial business relationship" with the owner or operator]:

Guarantor may terminate this guarantee one hundred twenty days after receipt of notification, through certified mail, by the director(s) for the Region(s) in which the facility(ies) is(are) located and by [the owner or operator].

11. Guarantor hereby expressly waives notice of acceptance of this guarantee by any party.

12. Guarantor agrees that this guarantee is in addition to and does not affect any other responsibility or liability of the guarantor with respect to the covered facilities.

13. The Guarantor shall satisfy a third-party liability claim only on receipt of one of the following documents:

(a) Certification from the Principal and the third-party claimant(s) that the liability claim should be paid. The certification shall be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

Certification of Valid Claim

The undersigned, as parties [insert Principal] and [insert name and address of third-party claimant(s)], hereby certify that the claim of bodily injury or property damage caused by a [sudden or non-sudden] accidental occurrence arising from operating.

[Principal's] facility should be paid in the amount of \$.

[Signatures]-----

Principal-----

(Notary) Date-----

[Signatures]-----

Claimant(s)-----

(Notary) Date-----

(b) A valid final court order establishing a judgment against the Principal for bodily injury or property damage caused by sudden or non-sudden accidental occurrences arising from the operation of the Principal's facility or group of facilities.

14. In the event of combination of this guarantee with another mechanism to meet liability requirements, this guarantee will be considered [insert "primary" or "excess"] coverage.

I hereby certify that the wording of the guarantee is identical to the wording specified in paragraph (G)(2) of rule 3745-51-151 of the Administrative Code as such rules were constituted on the date shown immediately below.

Effective date:-----

[Name of guarantor]-----

[Authorized signature for guarantor]-----

[Name of person signing]-----

[Title of person signing]-----

Signature of witness or notary:-----"

(H) A hazardous waste facility liability endorsement as required in rule 3745-51-147 of the Administrative Code shall be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

"Hazardous Secondary Material Reclamation/Intermediate Facility Liability Endorsement

1. This endorsement certifies that the policy to which the endorsement is attached provides liability insurance covering bodily injury and property damage in connection with the insured's obligation to demonstrate financial responsibility under rule 3745-51-147 of the Administrative Code. The coverage applies at [list U.S. EPA identification number (if any issued), name, and address for each facility] for [insert

"sudden accidental occurrences," "non-sudden accidental occurrences," or "sudden and non-sudden accidental occurrences;" if coverage is for multiple facilities and the coverage is different for different facilities, indicate which facilities are insured for sudden accidental occurrences, which are insured for non-sudden accidental occurrences, and which are insured for both]. The limits of liability are [insert the dollar amount of the "each occurrence" and "annual aggregate" limits of the Insurer's liability], exclusive of legal defense costs.

2. The insurance afforded with respect to such occurrences is subject to all of the terms and conditions of the policy; provided, however, that any provisions of the policy inconsistent with subsections (a) through (e) of this Paragraph 2 are hereby amended to conform with subsections (a) through (e):

(a) Bankruptcy or insolvency of the insured shall not relieve the Insurer of it's the Insurer's obligations under the policy to which this endorsement is attached.

(b) The Insurer is liable for the payment of amounts within any deductible applicable to the policy, with a right of reimbursement by the insured for any such payment made by the Insurer. This provision does not apply with respect to that amount of any deductible for which coverage is demonstrated as specified in paragraph (F) of rule 3745-51-147 of the Administrative Code.

(c) Whenever requested by a director of the U.S. Environmental Protection Agency (U.S. EPA), the Insurer agrees to furnish to the director a signed duplicate original of the policy and all endorsements.

(d) Cancellation of this endorsement, whether by the Insurer, the insured, a parent corporation providing insurance coverage for its subsidiary, or by a firm having an insurable interest in and obtaining liability insurance on behalf of the owner or operator of the facility, will be effective only upon written notice and only after the expiration of sixty days after a copy of such written notice is received by the director(s) of the U.S. EPA Region(s) in which the facility(ies) is(are) located.

(e) Any other termination of this endorsement will be effective only upon written notice and only after the expiration of thirty (30) days after a copy of such written notice is received by the director(s) of the U.S EPA Region(s) in which the facility(ies) is (are) located.

Attached to and forming part of policy No. ---- issued by [name of Insurer], herein called the Insurer, of [address of Insurer] to [name of insured] of [address] this ----- day of -----, 20----. The effective date of said policy is ----- day of -----, 20----.

I hereby certify that the wording of this endorsement is identical to the wording specified in paragraph (H) of rule 3745-51-151 of the Administrative Code as such rule was constituted on the date first above written, and that the Insurer is licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more states.

[Signature of Authorized Representative of Insurer]

[Type name]

[Title], Authorized Representative of [name of Insurer]

[Address of Representative]"

(I) A certificate of liability insurance as required in rule 3745-51-147 of the Administrative Code shall be worded as follows, except that the instructions in brackets are to be replaced with the relevant information and the brackets deleted:

"Hazardous Secondary Material Reclamation/Intermediate Facility Certificate of Liability Insurance

1. [Name of Insurer], (the "Insurer"), of [address of Insurer] hereby certifies that it has issued liability insurance covering bodily injury and property damage to [name of insured], (the "insured"), of [address of insured] in connection with the insured's obligation to demonstrate financial responsibility under Chapters 3745-55 and 3745-66 of the Administrative Code, and the financial assurance condition of paragraph (A)(24)(f)(vi) of rule 3745-51-04 of the Administrative Code. The coverage applies at [list U.S. EPA identification number (if any issued), name, and address for each facility] for [insert "sudden accidental occurrences," "non-sudden accidental occurrences," or "sudden and non-sudden accidental occurrences;" if coverage is for multiple facilities and the coverage is different for different facilities, indicate which facilities are insured for sudden accidental occurrences, which are insured for non-sudden accidental occurrences, and which are insured for both]. The limits of liability are [insert the dollar amount of the "each occurrence" and "annual aggregate" limits of the Insurer's liability], exclusive of legal defense costs. The coverage is provided under policy number, issued on [date]. The effective date of said policy is [date].

2. The Insurer further certifies the following with respect to the insurance described in Paragraph 1:

(a) Bankruptcy or insolvency of the insured shall not relieve the Insurer of it's the Insurer's obligations under the policy.

(b) The Insurer is liable for the payment of amounts within any deductible applicable to the policy, with a right of reimbursement by the insured for any such payment made by the Insurer. This provision does not apply with respect to that amount of any deductible for which coverage is demonstrated as specified in rule 3745-51-147 of the Administrative Code.

(c) Whenever requested by a director of the U.S. Environmental Protection Agency (U.S. EPA), the Insurer agrees to furnish to the director a signed duplicate original of the policy and all endorsements.

(d) Cancellation of the insurance, whether by the insurer, the insured, a parent corporation providing insurance coverage for its subsidiary, or by a firm having an insurable interest in and obtaining liability insurance on behalf of the owner or operator of the hazardous waste management facility, will be effective only upon written notice and only after the expiration of sixty days after a copy of such written notice is received by the director(s) of the U.S. EPA Region(s) in which the facility(ies) is(are) located.

(9) The Surety(ies) hereby waive(s) notification of amendments to applicable laws, statutes, rules and agree(s) that no such amendment shall in any way alleviate its (their) obligation on this bond. (10) This bond is effective from [insert date] (12:01 a.m., standard time, at the address of the Principal as stated herein) and shall continue in force until terminated as described above.

(e) Any other termination of the insurance will be effective only upon written notice and only after the expiration of thirty (30) days after a copy of such written notice is received by the director(s) of the U.S. EPA Region(s) in which the facility(ies) is (are) located.

I hereby certify that the wording of this instrument is identical to the wording specified in paragraph (I) of rule 3745-51-151 of the Administrative Code as such rule was constituted on the date first above written, and that the Insurer is licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more states.

[Signature of authorized representative of Insurer]

[Type name]

[Title], Authorized Representative of [name of Insurer]

[Address of Representative]"

(J) A letter of credit, as specified in paragraph (H) of rule 3745-51-147 of the Administrative Code shall be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

"Irrevocable Standby Letter of Credit

Name and Address of Issuing Institution-----

Regional Administrator(s)-----

Region(s)-----

U.S. Environmental Protection Agency-----

Dear Sir or Madam: We hereby establish our Irrevocable Standby Letter of Credit No. ----- in the favor of ["any and all third-party liability claimants" or insert name of trustee of the standby trust fund], at the request and for the account of [owner or operator's name and address] for third-party liability awards or settlements up to [in words] U.S. dollars \$----- per occurrence and the annual aggregate amount of [in words] U.S. dollars \$---, for sudden accidental occurrences or for third-party liability awards or settlements up to the amount of [in words] U.S. dollars \$----- per occurrence, and the annual aggregate amount of [in words] U.S. dollars \$-----, for non-sudden accidental occurrences available upon presentation of a sight draft bearing reference to this letter of credit No. -----, and [insert the following language if the letter of credit is being used without a standby trust fund:

(1) a signed certificate reading as follows:

Certificate of Valid Claim

The undersigned, as parties [insert principal] and [insert name and address of third party claimant(s)], hereby certify that the claim of bodily injury or property damage caused by a [sudden or non-sudden] accidental occurrence arising from operations of [principal's] facility should be paid in the amount of \$[]. We hereby certify that the claim does not apply to any of the following:

(a) Bodily injury or property damage for which [insert principal] is obligated to pay damages by reason of the assumption of liability in a contract or agreement. This exclusion does not apply to liability for damages that [insert principal] would be obligated to pay in the absence of the contract or agreement.

(b) Any obligation of [insert principal] under a workers' compensation, disability benefits, or unemployment compensation law or any similar law.

(c) Bodily injury to:

(1) An employee of [insert principal] arising from, and in the course of, employment by [insert principal]; or

(2) The spouse, child, parent, brother or sister of that employee as a consequence of, or arising from, and in the course of employment by [insert principal].

This exclusion applies:

(A) Whether [insert principal] may be liable as an employer or in any other capacity; and

(B) To any obligation to share damages with or repay another person who shall pay damages because of the injury to persons identified in paragraphs (1) and (2).

(d) Bodily injury or property damage arising out of the ownership, maintenance, use, or entrustment to others of any aircraft, motor vehicle or watercraft.

(e) Property damage to:

(1) Any property owned, rented, or occupied by [insert principal];

(2) Premises that are sold, given away or abandoned by [insert principal] if the property damage arises out of any part of those premises;

(3) Property loaned to [insert principal];

(4) Personal property in the care, custody or control of [insert principal];

(5) That particular part of real property on which [insert principal] or any contractors or subcontractors working directly or indirectly on behalf of [insert principal] are performing operations, if the property damage arises out of these operations.

[Signatures]-----

Grantor-----

[Signatures]-----

Claimant(s)-----

or (2) a valid final court order establishing a judgment against the Grantor for bodily injury or property damage caused by sudden or non-sudden accidental occurrences arising from the operation of the Grantor's facility or group of facilities.]

This letter of credit is effective as of [date] and shall expire on [date at least one year later], but such expiration date shall be automatically extended for a period of [at least one year] on [date and on each successive expiration date, unless, at least one hundred twenty days before the current expiration date, we notify you, the director for Region [Region], and [owner's or operator's name] by certified mail that we have decided not to extend this letter of credit beyond the current expiration date.

Whenever this letter of credit is drawn on under and in compliance with the terms of this credit, we shall duly honor such draft upon presentation to us.

[Insert the following language if a standby trust fund is not being used: "In the event that this letter of credit is used in combination with another mechanism for liability coverage, this letter of credit shall be considered [insert "primary" or "excess" coverage].

(a) Certification from the Grantor and the third party claimant(s) that the liability claim should be paid. The certification shall be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

We certify that the wording of this letter of credit is identical to the wording specified in paragraph (J) of rule 3745-51-151 of the Administrative Code as such rules were constituted on the date shown immediately below. [Signature(s) and title(s) of official(s) of issuing institution] [Date].

This credit is subject to [insert "the most recent edition of the Uniform Customs and Practice for Documentary Credits, published and copyrighted by the International Chamber of Commerce," or "the Uniform Commercial Code"]."

(K) A surety bond, as specified in paragraph (I) of rule 3745-51-147 of the Administrative Code shall be worded as follows: except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

"Payment Bond

Surety Bond No. [Insert number]

Parties [Insert name and address of owner or operator], Principal, incorporated in [Insert state of incorporation] of [Insert city and state of principal place of business] and [Insert name and address of surety company(ies)], Surety Company(ies), of [Insert surety(ies) place of business].

U.S. EPA identification number (if any issued), name, and address for each facility guaranteed by this bond: ----

	<u>Sudden accidental occurrences</u>	<u>Non-sudden accidental occurrences</u>
<u>Penal Sum Per Occurrence</u>	[insert amount]	[insert amount]
<u>Annual Aggregate</u>	[insert amount]	[insert amount]

Purpose: This is an agreement between the Surety(ies) and the Principal under which the Surety(ies), its(their) successors and assignees, agree to be responsible for the payment of claims against the Principal for bodily injury or property damage to third parties caused by ["sudden" or "non-sudden"] accidental occurrences arising from operations of the facility or group of facilities in the sums prescribed herein; subject to the governing provisions and the following conditions.

Governing Provisions:

(1) Section 3004 of the Resource Conservation and Recovery Act of 1976.

(2) Rules of the U.S. Environmental Protection Agency ("U.S. EPA"), particularly Chapters 3745-54 to 3745-57 and 3745-205 of the Administrative Code, Chapters 3745-65 to 3745-69 and 3745-256 of the Administrative Code, and rules 3745-51-140 to 3745-51-151 Administrative Code (if applicable).

(3) Rules of the governing state agency (if applicable) [insert citation].

Conditions:

(1) The Principal is subject to the applicable governing provisions that require the Principal to have and maintain liability coverage for bodily injury and property damage to third parties caused by ["sudden" or "non-sudden"] accidental occurrences arising from operations of the facility or group of facilities. Such obligation does not apply to any of the following:

(a) Bodily injury or property damage for which [insert Principal] is obligated to pay damages by reason of the assumption of liability in a contract or agreement. This exclusion does not apply to liability for damages that [insert Principal] would be obligated to pay in the absence of the contract or agreement.

(b) Any obligation of [insert Principal] under a workers' compensation, disability benefits, or unemployment compensation law or similar law.

(c) Bodily injury to:

(1) An employee of [insert Principal] arising from, and in the course of, employment by [insert principal]; or

(2) The spouse, child, parent, brother or sister of that employee as a consequence of, or arising from, and in the course of employment by [insert Principal]. This exclusion applies:

(A) Whether [insert Principal] may be liable as an employer or in any other capacity; and

(B) To any obligation to share damages with or repay another person who shall pay damages because of the injury to persons identified in paragraphs (1) and (2).

(d) Bodily injury or property damage arising out of the ownership, maintenance, use, or entrustment to others of any aircraft, motor vehicle or watercraft.

(e) Property damage to:

(1) Any property owned, rented, or occupied by [insert Principal];

(2) Premises that are sold, given away or abandoned by [insert Principal] if the property damage arises out of any part of those premises;

(3) Property loaned to [insert Principal];

(4) Personal property in the care, custody or control of [insert Principal];

(5) That particular part of real property on which [insert Principal] or any contractors or subcontractors working directly or indirectly on behalf of [insert Principal] are performing operations, if the property damage arises out of these operations.

(2) This bond assures that the Principal will satisfy valid third party liability claims, as described in condition 1.

(3) If the Principal fails to satisfy a valid third party liability claim, as described above, the Surety(ies) becomes liable on this bond obligation.

(4) The Surety(ies) shall satisfy a third party liability claim only upon the receipt of one of the following documents:

(a) Certification from the Principal and the third party claimant(s) that the liability claim should be paid. The certification shall be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

Certification of Valid Claim:

The undersigned, as parties [insert name of Principal] and [insert name and address of third party claimant(s)], hereby certify that the claim of bodily injury or property damage caused by a [sudden or non-sudden] accidental occurrence arising from operating [Principal's] facility should be paid in the amount of \$[].

[Signature]

Principal

[Notary] Date

[Signature(s)]

Claimant(s)

[Notary] Date

or (b) A valid final court order establishing a judgment against the Principal for bodily injury or property damage caused by sudden or non-sudden accidental occurrences arising from the operation of the Principal's facility or group of facilities.

(5) In the event of combination of this bond with another mechanism for liability coverage, this bond will be considered [insert "primary" or "excess"] coverage.

(6) The liability of the Surety(ies) shall not be discharged by any payment or succession of payments hereunder, unless and until such payment or payments shall amount in the aggregate to the penal sum of the bond. In no event shall the obligation of the Surety(ies) hereunder exceed the amount of said annual aggregate penal sum, provided that the Surety(ies) furnish(es) notice to the director forthwith of all claims filed and payments made by the Surety(ies) under this bond.

(7) The Surety(ies) may cancel the bond by sending notice of cancellation by certified mail to the Principal and the U.S. EPA director for Region [Region], provided, however, that cancellation shall not occur during the one hundred twenty days beginning on the date of receipt of the notice of cancellation by the Principal and the director, as evidenced by the return receipt.

(8) The Principal may terminate this bond by sending written notice to the Surety(ies) and to the director(s) of the EPA Region(s) in which the bonded facility(ies) is (are) located.

(9) The Surety(ies) hereby waive(s) notification of amendments to applicable laws, statutes, rules and agree(s) that no such amendment shall in any way alleviate its (their) obligation on this bond.

(10) This bond is effective from [insert date] (12:01 a.m., standard time, at the address of the Principal as stated herein) and shall continue in force until terminated as described above.

In Witness Whereof, the Principal and Surety(ies) have executed this Bond and have affixed their seals on the date set forth above.

The persons whose signatures appear below hereby certify that those persons are authorized to execute this surety bond on behalf of the Principal and Surety(ies) and that the wording of this surety bond is identical to the wording specified in paragraph (K) of rule 3745-51-151 of the Administrative Code, as such rules were constituted on the date this bond was executed.

PRINCIPAL

[Signature(s)]

[Name(s)]

[Title(s)]

[Corporate Seal]

CORPORATE SURETY[IES]

[Name and address]

State of incorporation:-----

Liability Limit: \$-----

[Signature(s)]

[Name(s) and title(s)]

[Corporate seal]

[For every co-surety, provide signature(s), corporate seal, and other information in the same manner as for Surety above.]

Bond premium: \$-----"

(L)

- (1) A trust agreement, as specified in paragraph (J) of rule 3745-51-147 of the Administrative Code , shall be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

"Trust Agreement

Trust Agreement, the "Agreement," entered into as of [date] by and between [name of the owner or operator] a [name of state] [insert "corporation," "partnership," "association," or "proprietorship"], the "Grantor," and [name of corporate trustee], [insert, "incorporated in the state of -----" or "a national bank"], the "trustee."

Whereas, the United States Environmental Protection Agency, "U.S. EPA," an agency of the United States government, has established certain rules applicable to the Grantor, requiring that an owner or operator shall demonstrate financial responsibility for bodily injury and property damage to third parties caused by sudden accidental or non-sudden accidental occurrences arising from operations of the facility or group of facilities.

Whereas, the Grantor has elected to establish a trust to assure all or part of such financial responsibility for the facilities identified herein.

Whereas, the Grantor, acting through the Guarantor's duly authorized officers, has selected the Trustee to be the trustee under this agreement, and the Trustee is willing to act as trustee.

Now, therefore, the Grantor and the Trustee agree as follows:

Section 1. Definitions. As used in this Agreement:

(a) The term "Grantor" means the owner or operator who enters into this Agreement and any successors or assigns of the Grantor.

(b) The term "Trustee" means the Trustee who enters into this Agreement and any successor Trustee.

Section 2. Identification of Facilities. This agreement pertains to the facilities identified on attached schedule A [on schedule A, for each facility list the U.S. EPA identification number (if any issued), name, and address of the facility(ies) and the amount of liability coverage, or portions thereof, if more than one instrument affords combined coverage as demonstrated by this Agreement].

Section 3. Establishment of Fund. The Grantor and the Trustee hereby establish a trust fund, hereinafter the "Fund," for the benefit of any and all third parties injured or damaged by [sudden or non-sudden] accidental occurrences arising from operation of the facility(ies) covered by this guarantee, in the amounts of -----[up to \$1 million] per occurrence and [up to \$2 million] annual aggregate for sudden accidental occurrences and ----- [up to \$3 million] per occurrence and -----[up to \$6 million] annual aggregate for non-sudden occurrences, except that the Fund is not established for the benefit of third parties for the following:

(a) Bodily injury or property damage for which [insert Grantor] is obligated to pay damages by reason of the assumption of liability in a contract or agreement. This exclusion does not apply to liability for damages that [insert Grantor] would be obligated to pay in the absence of the contract or agreement.

(b) Any obligation of [insert Grantor] under a workers' compensation, disability benefits, or unemployment compensation law or any similar law.

(c) Bodily injury to:

(1) An employee of [insert Grantor] arising from, and in the course of, employment by [insert Grantor]; or

(2) The spouse, child, parent, brother or sister of that employee as a consequence of, or arising from, and in the course of employment by [insert Grantor]. This exclusion applies:

(A) Whether [insert Grantor] may be liable as an employer or in any other capacity; and

(B) To any obligation to share damages with or repay another person who shall pay damages because of the injury to persons identified in paragraphs (1) and (2).

(d) Bodily injury or property damage arising out of the ownership, maintenance, use, or entrustment to others of any aircraft, motor vehicle or watercraft.

(e) Property damage to:

(1) Any property owned, rented, or occupied by [insert Grantor];

(2) Premises that are sold, given away or abandoned by [insert Grantor] if the property damage arises out of any part of those premises;

(3) Property loaned to [insert Grantor];

(4) Personal property in the care, custody or control of [insert Grantor];

(5) That particular part of real property on which [insert Grantor] or any contractors or subcontractors working directly or indirectly on behalf of [insert Grantor] are performing operations, if the property damage arises out of these operations.

In the event of combination with another mechanism for liability coverage, the Fund shall be considered [insert "primary" or "excess"] coverage.

The Fund is established initially as consisting of the property, which is acceptable to the Trustee, described in Schedule B attached hereto. Such property and any other property subsequently transferred to the Trustee is referred to as the Fund, together with all earnings and profits thereon, less any payments or distributions made by the Trustee pursuant to this Agreement. The Fund shall be held by the Trustee, IN TRUST, as hereinafter provided. The Trustee shall not be responsible nor shall the Trustee undertake any responsibility for the amount or adequacy of, nor any duty to collect from the Grantor, any payments necessary to discharge any liabilities of the Grantor established by U.S. EPA.

Section 4. Payment for Bodily Injury or Property Damage. The Trustee shall satisfy a third party liability claim by making payments from the Fund only upon receipt of one of the following documents:

(a) Certification from the Grantor and the third party claimant(s) that the liability claim should be paid. The certification shall be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

Certification of Valid Claim

The undersigned, as parties [insert Grantor] and [insert name and address of third party claimant(s)], hereby certify that the claim of bodily injury or property damage caused by a [sudden or non-sudden] accidental occurrence arising from operating [Grantor's] facility or group of facilities should be paid in the amount of \$[].

[Signatures]

Grantor

[Signatures]Claimant(s)

(b) A valid final court order establishing a judgment against the Grantor for bodily injury or property damage caused by sudden or non-sudden accidental occurrences arising from the operation of the Grantor's facility or group of facilities.

Section 5. Payments Comprising the Fund. Payments made to the Trustee for the Fund shall consist of cash or securities acceptable to the Trustee.

Section 6. Trustee Management. The Trustee shall invest and reinvest the principal and income, in accordance with general investment policies and guidelines which the Grantor may communicate in writing to the Trustee from time to time, subject, however, to the provisions of this section. In investing, reinvesting, exchanging, selling, and managing the Fund, the Trustee shall discharge his duties with respect to the trust fund solely in the interest of the beneficiary and with the care, skill, prudence, and diligence under the circumstance then prevailing which persons of prudence, acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims; except that:

(i) Securities or other obligations of the Grantor, or any other owner or operator of the facilities, or any of their affiliates as defined in the Investment Company Act of 1940, shall not be acquired or held unless they are securities or other obligations of the federal or a state government;

(ii) The Trustee is authorized to invest the Fund in time or demand deposits of the Trustee, to the extent insured by an agency of the federal or state government; and

(ii) The Trustee is authorized to invest the Fund in time or demand deposits of the Trustee, to the extent insured by an agency of the federal or state government; and

(iii) The Trustee is authorized to hold cash awaiting investment or distribution uninvested for a reasonable time and without liability for the payment of interest thereon.

Section 7. Commingling and Investment. The Trustee is expressly authorized in its discretion:

(a) To transfer from time to time any or all of the assets of the Fund to any common commingled, or collective trust fund created by the Trustee in which the fund is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein; and

(b) To purchase shares in any investment company registered under the Investment Company Act of 1940, including one which may be created, managed, underwritten, or to which investment advice is rendered or the shares of which are sold by the Trustee. The Trustee may vote such shares in its discretion.

Section 8. Express Powers of Trustee. Without in any way limiting the powers and discretions conferred upon the Trustee by the other provisions of this Agreement or by law, the Trustee is expressly authorized and empowered:

(a) To sell, exchange, convey, transfer, or otherwise dispose of any property held by it, by public or private sale. No person dealing with the Trustee shall be bound to see to the application of the purchase money or to inquire into the validity or expediency of any such sale or other disposition;

(b) To make, execute, acknowledge, and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(c) To register any securities held in the Fund in its own name or in the name of a nominee and to hold any security in bearer form or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the Trustee in other fiduciary capacities, or to deposit or arrange for the deposit of such securities in a qualified central depository even though, when so deposited, such securities may be merged and held in bulk in the name of the nominee of such depository with other securities deposited therein by another person, or to deposit or arrange for the deposit of any securities issued by the United States government, or any agency or instrumentality thereof, with a Federal Reserve bank, but the books and records of the Trustee shall at all times show that all such securities are part of the Fund;

(d) To deposit any cash in the Fund in interest-bearing accounts maintained or savings certificates issued by the Trustee, in its separate corporate capacity, or in any other banking institution affiliated with the Trustee, to the extent insured by an agency of the federal or state government; and

(e) To compromise or otherwise adjust all claims in favor of or against the Fund.

Section 9. Taxes and Expenses. All taxes of any kind that may be assessed or levied against or in respect of the Fund and all brokerage commissions incurred by the Fund shall be paid from the Fund. All other expenses incurred by the Trustee in connection with the administration of this Trust, including fees for legal services rendered to the Trustee, the compensation of the Trustee to the extent not paid directly by the Grantor, and all other proper charges and disbursements of the Trustee shall be paid from the Fund.

Section 10. Annual Valuations. The Trustee shall annually, at least thirty days prior to the anniversary date of establishment of the Fund, furnish to the Grantor and to the appropriate director a statement confirming the value of the Trust. Any securities in the Fund shall be valued at market value as of no more than sixty days prior to the anniversary date of establishment of the Fund. The failure of the Grantor to object in writing to the Trustee within ninety days after the statement has been furnished to the Grantor and the director shall constitute a conclusively binding assent by the Grantor barring the Grantor from asserting any claim or liability against the Trustee with respect to matters disclosed in the statement.

Section 11. Advice of Counsel. The Trustee may from time to time consult with counsel, who may be counsel to the Grantor with respect to any question arising as to the construction of this Agreement or any action to be taken hereunder. The Trustee shall be fully protected, to the extent permitted by law, in acting upon the advice of counsel.

Section 12. Trustee Compensation. The Trustee shall be entitled to reasonable compensation for its services as agreed upon in writing from time to time with the Grantor.

Section 13. Successor Trustee. The Trustee may resign or the Grantor may replace the Trustee, but such resignation or replacement shall not be effective until the Grantor has appointed a successor trustee and this successor accepts the appointment. The successor trustee shall have the same powers and duties as those conferred upon the Trustee hereunder. Upon the successor trustee's acceptance of the appointment, the Trustee shall assign, transfer, and pay over to the successor trustee the funds and properties then constituting the Fund. If for any reason the Grantor cannot or does not act in the event of the resignation of the Trustee, the Trustee may apply to a court of competent jurisdiction for the appointment of a successor trustee or for instructions. The successor trustee shall specify the date on which it assumes administration of the trust in a writing sent to the Grantor, the director, and the present Trustee by certified mail ten days before such change becomes effective. Any expenses incurred by the

Trustee as a result of any of the acts contemplated by this section shall be paid as provided in Section 9.

Section 14. Instructions to the Trustee. All orders, requests, and instructions by the Grantor to the Trustee shall be in writing, signed by such persons as are designated in the attached Exhibit A or such other designees as the Grantor may designate by amendments to Exhibit A. The Trustee shall be fully protected in acting without inquiry in accordance with the Grantor's orders, requests, and instructions. All orders, requests, and instructions by the director to the Trustee shall be in writing, signed by the directors of the Regions in which the facilities are located, or their designees, and the Trustee shall act and shall be fully protected in acting in accordance with such orders, requests, and instructions. The Trustee shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to act on behalf of the Grantor or U.S. EPA hereunder has occurred. The Trustee shall have no duty to act in the absence of such orders, requests, and instructions from the Grantor or U.S. EPA, except as provided for herein.

Section 15. Notice of Nonpayment. If a payment for bodily injury or property damage is made under Section 4 of this trust, the Trustee shall notify the Grantor of such payment and the amount(s) thereof within five working days. The Grantor shall, on or before the anniversary date of the establishment of the Fund after such notice, either make payments to the Trustee in amounts sufficient to cause the trust to return to its value immediately prior to the payment of claims under Section 4, or shall provide written proof to the Trustee that other financial assurance for liability coverage has been obtained equaling the amount necessary to return the trust to its value prior to the payment of claims. If the Grantor does not either make payments to the Trustee or provide the Trustee with such proof, the Trustee shall within ten working days after the anniversary date of the establishment of the Fund provide a written notice of nonpayment to the director.

Section 16. Amendment of Agreement. This Agreement may be amended by an instrument in writing executed by the Grantor, the Trustee, and the appropriate director, or by the Trustee and the appropriate director if the Grantor ceases to exist.

Section 17. Irrevocability and Termination. Subject to the right of the parties to amend this Agreement as provided in Section 16, this Trust shall be irrevocable and shall continue until terminated at the written agreement of the Grantor, the Trustee, and the director, or by the Trustee and the director, if the Grantor ceases to exist. Upon termination of the Trust, all remaining trust property, less final trust administration expenses, shall be delivered to the Grantor.

The director will agree to termination of the Trust when the owner or operator substitutes alternate financial assurance as specified in this section.

Section 18. Immunity and Indemnification. The Trustee shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this Trust, or in carrying out any directions by the Grantor or the director issued in accordance with this Agreement. The Trustee shall be indemnified and saved harmless by the Grantor or from the Trust Fund, or both, from and against any personal liability to which the Trustee may be subjected by reason of any act or conduct in its official capacity, including all expenses reasonably incurred in its defense in the event the Grantor fails to provide such defense.

Section 19. Choice of Law. This Agreement shall be administered, construed, and enforced according to the laws of the state of [enter name of state].

Section 20. Interpretation. As used in this Agreement, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each section of this Agreement shall not affect the interpretation or the legal efficacy of this Agreement.

In Witness Whereof the parties have caused this Agreement to be executed by their respective officers duly authorized and their corporate seals to be hereunto affixed and attested as of the date first above written. The parties below certify that the wording of this Agreement is identical to the wording specified in paragraph L of rule 3745-51-151 of the Administrative Code as such rules were constituted on the date first above written.

[Signature of Grantor]

[Title]

Attest:

[Title]

[Seal]

[Signature of Trustee]

Attest:

[Title:]

[Seal:]

(2) The following is an example of the certification of acknowledgement which shall accompany the trust agreement for a trust fund as specified in paragraph (J) of rule 3745-51-147 of the Administrative Code. State requirements may differ on the proper content of this acknowledgment.

State of-----

County of-----

On this [date], before me personally came [owner or operator] to me known, who, being by me duly sworn, did depose and say that she/he resides at [address], that she/he is [title] of [corporation], the corporation described in and which executed the above instrument; that she/he knows the seal of said corporation; that the seal affixed to such instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation, and that she/he signed her/his name thereto by like order.

[Signature of Notary Public]"

(M)

(1) A standby trust agreement, as specified in paragraph (H) of rule 3745-51-147 of the Administrative Code of this chapter, shall be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

"Standby Trust Agreement

Trust Agreement, the "Agreement," entered into as of [date] by and between [name of the owner or operator] a [name of a state] [insert "corporation," "partnership," "association," or "proprietorship"], the "Grantor," and [name of corporate trustee], [insert, "incorporated in the state of -----" or "a national bank"], the "trustee."

Whereas the United States Environmental Protection Agency, "U.S. EPA," an agency of the United States government, has established certain rules applicable to the Grantor, requiring that an owner or operator shall demonstrate financial responsibility for bodily injury and property damage to third parties caused by sudden accidental or non-sudden accidental occurrences arising from operations of the facility or group of facilities.

Whereas, the Grantor has elected to establish a standby trust into which the proceeds from a letter of credit may be deposited to assure all or part of such financial responsibility for the facilities identified herein.

Whereas, the Grantor, acting through its duly authorized officers, has selected the Trustee to be the trustee under this agreement, and the Trustee is willing to act as trustee.

Now, therefore, the Grantor and the Trustee agree as follows:

Section 1. Definitions. As used in this Agreement:

(a) The term Grantor means the owner or operator who enters into this Agreement and any successors or assigns of the Grantor.

(b) The term Trustee means the Trustee who enters into this Agreement and any successor Trustee.

Section 2. Identification of Facilities. This Agreement pertains to the facilities identified on attached schedule A [on schedule A, for each facility list the U.S. EPA identification number (if any issued), name, and address of the facility(ies) and the amount of liability coverage, or portions thereof, if more than one instrument affords combined coverage as demonstrated by this Agreement].

Section 3. Establishment of Fund. The Grantor and the Trustee hereby establish a standby trust fund, hereafter the "Fund," for the benefit of any and all third parties injured or damaged by [sudden or non-sudden] accidental occurrences arising from operation of the facility(ies) covered by this guarantee, in the amounts of -----[up to \$1 million] per occurrence and -----[up to \$2 million] annual aggregate for sudden accidental occurrences and -----[up to \$3 million] per occurrence and -----[up to \$6 million] annual aggregate for non-sudden occurrences, except that the Fund is not established for the benefit of third parties for the following:

(a) Bodily injury or property damage for which [insert Grantor] is obligated to pay damages by reason of the assumption of liability in a contract or agreement. This exclusion does not apply to liability for damages that [insert Grantor] would be obligated to pay in the absence of the contract or agreement.

(b) Any obligation of [insert Grantor] under a workers' compensation, disability benefits, or unemployment compensation law or any similar law.

(c) Bodily injury to:

(1) An employee of [insert Grantor] arising from, and in the course of, employment by [insert Grantor]; or

(2) The spouse, child, parent, brother or sister of that employee as a consequence of, or arising from, and in the course of employment by [insert Grantor]. This exclusion applies:

(A) Whether [insert Grantor] may be liable as an employer or in any other capacity; and

(B) To any obligation to share damages with or repay another person who shall pay damages because of the injury to persons identified in paragraphs (1) and (2).

(d) Bodily injury or property damage arising out of the ownership, maintenance, use, or entrustment to others of any aircraft, motor vehicle or watercraft.

(e) Property damage to:

(1) Any property owned, rented, or occupied by [insert Grantor];

(2) Premises that are sold, given away or abandoned by [insert Grantor] if the property damage arises out of any part of those premises;

(3) Property loaned by [insert Grantor];

(4) Personal property in the care, custody or control of [insert Grantor];

(5) That particular part of real property on which [insert Grantor] or any contractors or subcontractors working directly or indirectly on behalf of [insert Grantor] are performing operations, if the property damage arises out of these operations.

In the event of combination with another mechanism for liability coverage, the Fund shall be considered [insert "primary" or "excess"] coverage.

The Fund is established initially as consisting of the proceeds of the letter of credit deposited into the Fund. Such proceeds and any other property subsequently transferred to the Trustee is referred to as the Fund, together with all earnings and profits thereon, less any payments or distributions made by the Trustee pursuant to this Agreement. The Fund shall be held by the Trustee, IN TRUST, as hereinafter provided. The Trustee shall not be responsible nor shall the Trustee undertake any responsibility for the amount or adequacy of,

nor any duty to collect from the Grantor, any payments necessary to discharge any liabilities of the Grantor established by U.S. EPA.

Section 4. Payment for Bodily Injury or Property Damage. The Trustee shall satisfy a third party liability claim by drawing on the letter of credit described in Schedule B and by making payments from the Fund only upon receipt of one of the following documents:

(a) Certification from the Grantor and the third party claimant(s) that the liability claim should be paid. The certification shall be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

Certification of Valid Claim

The undersigned, as parties [insert Grantor] and [insert name and address of third party claimant(s)], hereby certify that the claim of bodily injury or property damage caused by a [sudden or non-sudden] accidental occurrence arising from operating [Grantor's] facility should be paid in the amount of \$[] .

[Signature]-----

Grantor-----

[Signatures]-----

Claimant(s)-----

(b) A valid final court order establishing a judgment against the Grantor for bodily injury or property damage caused by sudden or non-sudden accidental occurrences arising from the operation of the Grantor's facility or group of facilities.

Section 5. Payments Comprising the Fund. Payments made to the Trustee for the Fund shall consist of the proceeds from the letter of credit drawn upon by the Trustee in accordance with the requirements of paragraph (K) of rule 3745-51-151 of the Administrative Code and Section 4 of this Agreement.

Section 6. Trustee Management. The Trustee shall invest and reinvest the principal and income, in accordance with general investment policies and guidelines which the Grantor may communicate in writing to the Trustee from time to time, subject, however, to the provisions of this Section. In investing, reinvesting, exchanging, selling, and managing the Fund, the Trustee shall discharge his duties with respect to the trust fund solely in the interest of

the beneficiary and with the care, skill, prudence, and diligence under the circumstances then prevailing which persons of prudence, acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims; except that:

(i) Securities or other obligations of the Grantor, or any other owner or operator of the facilities, or any of their affiliates as defined in the Investment Company Act, shall not be acquired or held, unless they are securities or other obligations of the federal or a state government;

(ii) The Trustee is authorized to invest the Fund in time or demand deposits of the Trustee, to the extent insured by an agency of the federal or a state government; and

(iii) The Trustee is authorized to hold cash awaiting investment or distribution uninvested for a reasonable time and without liability for the payment of interest thereon.

Section 7. Commingling and Investment. The Trustee is expressly authorized in its discretion:

(a) To transfer from time to time any or all of the assets of the Fund to any common, commingled, or collective trust fund created by the Trustee in which the Fund is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein; and

(b) To purchase shares in any investment company registered under the Investment Company Act, including one which may be created, managed, underwritten, or to which investment advice is rendered or the shares of which are sold by the Trustee. The Trustee may vote such shares in its discretion.

Section 8. Express Powers of Trustee. Without in any way limiting the powers and discretions conferred upon the Trustee by the other provisions of this Agreement or by law, the Trustee is expressly authorized and empowered:

(a) To sell, exchange, convey, transfer, or otherwise dispose of any property held by it, by public or private sale. No person dealing with the Trustee shall be bound to see to the application of the purchase money or to inquire into the validity or expediency of any such sale or other disposition;

(b) To make, execute, acknowledge, and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(c) To register any securities held in the Fund in its own name or in the name of a nominee and to hold any security in bearer form or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the Trustee in other fiduciary capacities, or to deposit or arrange for the deposit of such securities in a qualified central depository even though, when so deposited, such securities may be merged and held in bulk in the name of the nominee of such depository with other securities deposited therein by another person, or to deposit or arrange for the deposit of any securities issued by the United States government, or any agency or instrumentality thereof, with a Federal Reserve Bank, but the books and records of the Trustee shall at all times show that all such securities are part of the Fund;

(d) To deposit any cash in the Fund in interest-bearing accounts maintained or savings certificates issued by the Trustee, in its separate corporate capacity, or in any other banking institution affiliated with the Trustee, to the extent insured by an agency of the federal or state government; and

(e) To compromise or otherwise adjust all claims in favor of or against the Fund.

Section 9. Taxes and Expenses. All taxes of any kind that may be assessed or levied against or in respect of the Fund and all brokerage commissions incurred by the Fund shall be paid from the Fund. All other expenses incurred by the Trustee in connection with the administration of this Trust, including fees for legal services rendered to the Trustee, the compensation of the Trustee to the extent not paid directly by the Grantor, and all other proper charges and disbursements to the Trustee shall be paid from the Fund.

Section 10. Advice of Counsel. The Trustee may from time to time consult with counsel, who may be counsel to the Grantor, with respect to any question arising as to the construction of this Agreement or any action to be taken hereunder. The Trustee shall be fully protected, to the extent permitted by law, in acting upon the advice of counsel.

Section 11. Trustee Compensation. The Trustee shall be entitled to reasonable compensation for its services as agreed upon in writing from time to time with the Grantor.

Section 12. Successor Trustee. The Trustee may resign or the Grantor may replace the Trustee, but such resignation or replacement shall not be effective until the Grantor has appointed a successor trustee and this successor accepts the appointment. The successor trustee shall have the same powers and duties as those conferred upon the Trustee hereunder. Upon the successor trustee's acceptance of the appointment, the Trustee shall assign, transfer, and pay over

to the successor trustee the funds and properties then constituting the Fund. If for any reason the Grantor cannot or does not act in the event of the resignation of the Trustee, the Trustee may apply to a court of competent jurisdiction for the appointment of a successor trustee or for instructions. The successor trustee shall specify the date on which it assumes administration of the trust in a writing sent to the Grantor, the director and the present Trustee by certified mail ten days before such change becomes effective. Any expenses incurred by the Trustee as a result of any of the acts contemplated by this Section shall be paid as provided in Section 9.

Section 13. Instructions to the Trustee. All orders, requests, certifications of valid claims, and instructions to the Trustee shall be in writing, signed by such persons as are designated in the attached Exhibit A or such other designees as the Grantor may designate by amendments to Exhibit A. The Trustee shall be fully protected in acting without inquiry in accordance with the Grantor's orders, requests, and instructions. The Trustee shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to act on behalf of the Grantor or the director hereunder has occurred. The Trustee shall have no duty to act in the absence of such orders, requests, and instructions from the Grantor or U.S. EPA, except as provided for herein.

Section 14. Amendment of Agreement. This Agreement may be amended by an instrument in writing executed by the Grantor, the Trustee, and the director, or by the Trustee and the director if the Grantor ceases to exist.

Section 15. Irrevocability and Termination. Subject to the right of the parties to amend this Agreement as provided in Section 14, this Trust shall be irrevocable and shall continue until terminated at the written agreement of the Grantor, the Trustee, and the director, or by the Trustee and the director, if the Grantor ceases to exist. Upon termination of the Trust, all remaining trust property, less final trust administration expenses, shall be paid to the Grantor.

The director will agree to termination of the Trust when the owner or operator substitutes alternative financial assurance as specified in this section.

Section 16. Immunity and indemnification. The Trustee shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this Trust, or in carrying out any directions by the Grantor and the director issued in accordance with this Agreement. The Trustee shall be indemnified and saved harmless by the Grantor or from the Trust Fund, or both, from and against any personal liability to which the Trustee may be subjected by reason of any act or conduct in its official capacity, including all

expenses reasonably incurred in its defense in the event the Grantor fails to provide such defense.

Section 17. Choice of Law. This Agreement shall be administered, construed, and enforced according to the laws of the state of [enter name of state].

Section 18. Interpretation. As used in this Agreement, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each Section of this Agreement shall not affect the interpretation of the legal efficacy of this Agreement.

In Witness Whereof the parties have caused this Agreement to be executed by their respective officers duly authorized and their corporate seals to be hereunto affixed and attested as of the date first above written. The parties below certify that the wording of this Agreement is identical to the wording specified in paragraph (M) of rule 3745-51-151 of the Administrative Code as such rules were constituted on the date first above written.

[Signature of Grantor]

[Title]

Attest:

[Title]

[Seal]

[Signature of Trustee]

Attest:

[Title]

[Seal]

(2) The following is an example of the certification of acknowledgement which shall accompany the trust agreement for a standby trust fund as specified in paragraph (H) of rule 3745-51-147 of the Administrative Code.

State of-----

County of-----

On this [date], before me personally came [owner or operator] to me known, who, being by me duly sworn, did depose and say that she/he resides at [address], that she/he is [title] of [corporation], the corporation described in and which executed the above instrument; that she/he knows the seal of said corporation; that the seal affixed to such instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation, and that she/he signed her/ his name thereto by like order.

[Signature of Notary Public]"

[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."]

Effective: 6/12/2023

Five Year Review (FYR) Dates: Exempt

CERTIFIED ELECTRONICALLY

Certification

06/02/2023

Date

Promulgated Under: 119.03
Statutory Authority: 3734.12
Rule Amplifies: 3734.12

3745-51-170

Use and management of containers.

(A) Applicability. This rule applies to hazardous secondary materials excluded under the remanufacturing exclusion at paragraph (A)(27) of rule 3745-51-04 of the Administrative Code.

(B) Condition of containers. If a container holding hazardous secondary material is not in good condition (e.g., severe rusting, apparent structural defects) or if the container begins to leak, the hazardous secondary material shall be transferred from this container to a container that is in good condition or managed in some other way that complies with the requirements of Chapter 3745-51 of the Administrative Code.

(C) Compatibility of hazardous secondary materials with containers. The container shall be made of or lined with materials which will not react with, and are otherwise compatible with, the hazardous secondary material to be stored, so that the ability of the container to contain the material is not impaired.

(D) Management of containers.

(1) A container holding hazardous secondary material shall always be closed during storage, except when it is necessary to add or remove the hazardous secondary material.

(2) A container holding hazardous secondary material shall not be opened, handled, or stored in a manner which may rupture the container or cause the container to leak.

(E) Containment.

(1) Container storage areas shall have a containment system that is designed and operated in accordance with paragraph (E)(2) of this rule.

(2) A containment system shall be designed and operated as follows:

(a) A base shall underlie the containers which is free of cracks or gaps and is sufficiently impervious to contain leaks, spills, and accumulated precipitation until the collected material is detected and removed;

(b) The base shall be sloped or the containment system shall be otherwise designed and operated to drain and remove liquids resulting from leaks, spills, or precipitation, unless the containers are elevated or are otherwise protected from contact with accumulated liquids;

(c) The containment system shall have sufficient capacity to contain ten per cent of the volume of containers or the volume of the largest container, whichever is greater;

(d) Run-on into the containment system shall be prevented unless the collection system has sufficient excess capacity in addition to that required in paragraph (E)(2)(c) of this rule to contain any run-on which might enter the system; and

(e) Spilled or leaked material and accumulated precipitation shall be removed from the sump or collection area in as timely a manner as is necessary to prevent overflow of the collection system.

(F) Special requirements for ignitable or reactive hazardous secondary material. Containers holding ignitable or reactive hazardous secondary material shall be located at least fifteen meters (fifty feet) from the facility's property line.

(G) Special requirements for incompatible materials:

(1) Incompatible materials shall not be placed in the same container.

(2) Hazardous secondary material shall not be placed in an unwashed container that previously held an incompatible material.

(3) A storage container holding a hazardous secondary material that is incompatible with any other materials stored nearby shall be separated from the other materials or protected from the other materials by means of a dike, berm, wall, or other device.

(H) The remanufacturer or other person that stores or treats the hazardous secondary material shall manage all hazardous secondary material placed in a container in accordance with the applicable requirements of rules 3745-51-730 to 3745-51-735, 3745-51-750 to 3745-51-764, and 3745-51-780 to 3745-51-789 of the Administrative Code.

Effective: 6/12/2023

Five Year Review (FYR) Dates: Exempt

CERTIFIED ELECTRONICALLY

Certification

06/02/2023

Date

Promulgated Under: 119.03
Statutory Authority: 3734.12
Rule Amplifies: 3734.12

3745-51-190

Applicability - tank systems.

- (A) Rules 3745-51-190 to 3745-51-200 of the Administrative Code apply to tank systems for storing or treating hazardous secondary material excluded under the remanufacturing exclusion in paragraph (A)(27) of rule 3745-51-04 of the Administrative Code.
- (B) "Tank systems," including "sumps," as defined in rule 3745-50-10 of the Administrative Code, that serve as part of a secondary containment system to collect or contain releases of hazardous secondary materials are exempted from the requirements in paragraph (A) of rule 3745-51-193 of the Administrative Code.

Effective: 6/12/2023

Five Year Review (FYR) Dates: Exempt

CERTIFIED ELECTRONICALLY

Certification

06/02/2023

Date

Promulgated Under: 119.03
Statutory Authority: 3734.12
Rule Amplifies: 3734.12

3745-51-191

Assessment of existing tank system's integrity.

(A) Tank systems shall meet the secondary containment requirements of rule 3745-51-193 of the Administrative Code, or the remanufacturer or other person who handles the hazardous secondary material shall determine that the tank system is not leaking or is unfit for use. Except as provided in paragraph (C) of this rule, a written assessment reviewed and certified by a qualified professional engineer shall be kept on file at the remanufacturer's facility or other facility that stores or treats the hazardous secondary material that attests to the tank system's integrity.

(B) This assessment shall determine that the tank system is adequately designed and has sufficient structural strength and compatibility with the materials to be stored or treated, to ensure that the tank system will not collapse, rupture, or fail. At a minimum, this assessment shall consider the following:

(1) Design standards, if available, according to which the tank and ancillary equipment were constructed;

(2) Hazardous characteristics of the materials that have been and will be handled;

(3) Existing corrosion protection measures;

(4) Documented age of the tank system, if available (otherwise, an estimate of the age); and

(5) Results of a leak test, internal inspection, or other tank integrity examination such that:

(a) For non-enterable underground tanks, the assessment shall include a leak test that is capable of taking into account the effects of temperature variations, tank end deflection, vapor pockets, and high water table effects; and

(b) For other than non-enterable underground tanks and for ancillary equipment, this assessment shall include either a leak test, as described above, or other integrity examination that is certified by a qualified professional engineer that addresses cracks, leaks, corrosion, and erosion.

[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 in conducting other than a leak test.]

(C) If, as a result of the assessment conducted in accordance with paragraph (A) of this rule, a tank system is found to be leaking or unfit for use, the remanufacturer or other person who stores or treats the hazardous secondary material shall comply with the requirements of rule 3745-51-196 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."]

Effective: 6/12/2023

Five Year Review (FYR) Dates: Exempt

CERTIFIED ELECTRONICALLY

Certification

06/02/2023

Date

Promulgated Under: 119.03
Statutory Authority: 3734.12
Rule Amplifies: 3734.12

3745-51-193**Containment and detection of releases - tank systems.****(A) Secondary containment systems shall be:**

- (1) Designed, installed, and operated to prevent any migration of materials or accumulated liquid out of the system to the 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.**

[Comment: If the collected material is a hazardous waste under Chapter 3745-51 of the Administrative Code, the collected material 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, 3745-256, 3745-266, and 3745-270 of the Administrative Code. If the collected material is discharged through a point source to waters of the United States, the collected material is subject to the requirements of Section 301, Section 304, and Section 402 of the Clean Water Act. If discharged to a publicly owned treatment works (POTW), the collected material is subject to the requirements of Section 307 of the Clean Water Act. If the collected material is released to the environment, the collected material may be subject to the reporting requirements of 40 CFR Part 302.]

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

- (1) Constructed of or lined with materials that are compatible with the materials to be placed in the tank system and shall have sufficient strength and thickness to prevent failure owing to pressure gradients (including static head and external hydrological forces), physical contact with the material to which the tank system 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 tank 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 the leak detection system will detect the failure of either the primary or secondary containment structure or the presence of any release of hazardous secondary material or accumulated liquid in the secondary containment system at the earliest practicable time; and**

(4) Sloped or otherwise designed or operated to drain and remove liquids resulting from leaks, spills, or precipitation. Spilled or leaked material and accumulated precipitation shall 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.

(C) Secondary containment for tanks shall include one or more of the following devices:

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

(2) A vault; or

(3) A double-walled tank.

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

(1) External liner systems shall be:

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

(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 shall 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 material if the material is released from the tanks (i.e., capable of preventing lateral as well as vertical migration of the material).

(2) Vault systems shall be:

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

(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 shall 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 material and that will prevent migration of material into the concrete;

(e) Provided with a means to protect against the formation of and ignition of vapors within the vault, if the material being stored or treated is ignitable or reactive; 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 shall 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.

[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.]

(E) [Reserved.]

(F) Ancillary equipment shall be provided with secondary containment (e.g., trench, jacketing, double-walled piping) that meets the requirements of paragraphs (A) and (B) 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.

[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."]

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3745-51-194**General operating requirements - tank systems.**

- (A) Hazardous secondary materials or treatment reagents shall not be placed in a tank system if the hazardous secondary materials or treatment reagents could cause the tank, the tank's ancillary equipment, or the containment system to rupture, leak, corrode, or otherwise fail.
- (B) The remanufacturer or other person who stores or treats the hazardous secondary material shall use appropriate controls and practices to prevent spills and overflows from tank or containment systems, including, at a minimum:
- (1) Spill prevention controls (e.g., check valves, dry disconnect couplings);
 - (2) Overfill prevention controls (e.g., level sensing devices, high level alarms, automatic feed cutoff, or bypass to a standby tank); and
 - (3) Maintenance of sufficient freeboard in uncovered tanks to prevent overtopping by wave or wind action or by precipitation.
- (C) The remanufacturer or other person who stores or treats the hazardous secondary material shall comply with the requirements of rule 3745-51-196 of the Administrative Code if a leak or spill occurs in the tank system.

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3745-51-196

Response to leaks or spills and disposition of leaking unfit-for-use tank systems.

A tank system or secondary containment system from which there has been a leak or spill, or which is unfit for use, shall be removed from service immediately, and the remanufacturer or other person who stores or treats the hazardous secondary material satisfy the following requirements:

(A) Cessation of use; prevent flow or addition of materials. The remanufacturer or other person who stores or treats the hazardous secondary material shall immediately stop the flow of hazardous secondary material into the tank system or secondary containment system and inspect the tank system or secondary containment system to determine the cause of the release.

(B) Removal of material from tank system or secondary containment system.

(1) If the release was from the tank system, the remanufacturer or other person who stores or treats the hazardous secondary material shall, within twenty-four hours after detection of the leak or, if the remanufacturer or other person who stores or treats the hazardous secondary material demonstrates that it is not possible, at the earliest practicable time, remove as much of the material as is necessary to prevent further release of hazardous secondary material to the environment, and to allow inspection and repair of the tank system to be performed.

(2) If the material released was to a secondary containment system, all released materials shall be removed within twenty-four hours or in as timely a manner as is possible to prevent harm to human health and the environment.

(C) Containment of visible releases to the environment. The remanufacturer or other person who stores or treats the hazardous secondary material shall immediately conduct a visual inspection of the release and, based upon that inspection:

(1) Prevent further migration of the leak or spill to soils or surface water; and

(2) Remove and properly dispose of, any visible contamination of the soil or surface water.

(D) Notifications, reports.

(1) Any release to the environment, except as provided in paragraph (D)(2) of this rule, shall be reported to the director within twenty-four hours after detection of the release. If the release has been reported pursuant to 40 CFR Part 302, that report will satisfy this requirement.

(2) A leak or spill of hazardous secondary material is exempted from the requirements of this paragraph if the leak or spill is:

(a) Less than or equal to a quantity of one pound; and

(b) Immediately contained and cleaned up.

(3) Within thirty days after detection of a release to the environment, a report containing the following information shall be submitted to the director:

(a) Likely route of migration of the release;

(b) Characteristics of the surrounding soil (soil composition, geology, hydrogeology, climate);

(c) Results of any monitoring or sampling conducted in connection with the release (if available). If sampling or monitoring data relating to the release are not available within thirty days, these data shall be submitted to the director as soon as these data become available.

(d) Proximity to downgradient drinking water, surface water, and populated areas; and

(e) Description of response actions taken or planned.

(E) Provision of secondary containment, repair, or closure.

(1) Unless the remanufacturer or other person who stores or treats the hazardous secondary material satisfies the requirements of paragraphs (E)(2) to (E)(4) of this rule, the tank system shall cease to operate under the remanufacturing exclusion in paragraph (A)(27) of rule 3745-51-04 of the Administrative Code.

(2) If the cause of the release was a spill that has not damaged the integrity of the tank system, the remanufacturer or other person who stores or treats the hazardous secondary material may return the tank system to service as soon as the released material is removed and repairs, if necessary, are made.

(3) If the cause of the release was a leak from the primary tank system into the secondary containment system, the primary tank system shall be repaired prior to returning the tank system to service.

(4) If the source of the release was a leak to the environment from a component of a tank system without secondary containment, the remanufacturer or other person who stores or treats the hazardous secondary material shall

provide the component of the tank system from which the leak occurred with secondary containment that satisfies the requirements of rule 3745-51-193 of the Administrative Code before the tank system can be returned to service, unless the source of the leak is an aboveground portion of a tank system that can be inspected visually. If the source is an aboveground component that can be inspected visually, the component shall be repaired and may be returned to service without secondary containment as long as the requirements of paragraph (F) of this rule are satisfied. Additionally, if a leak has occurred in any portion of a tank system component that is not readily accessible for visual inspection (e.g., the bottom of an inground or onground tank), the entire component shall be provided with secondary containment in accordance with rule 3745-51-193 of the Administrative Code prior to being returned to use.

(F) Certification of major repairs. If the remanufacturer or other person who stores or treats the hazardous secondary material has repaired a tank system in accordance with paragraph (E) of this rule, and the repair has been extensive (e.g., installation of an internal liner; repair of a ruptured primary containment or secondary containment vessel), the tank system shall not be returned to service unless the remanufacturer or other person who stores or treats the hazardous secondary material has obtained a certification by a qualified professional engineer that the repaired system is capable of handling hazardous secondary materials without release for the intended life of the tank system. This certification shall be kept on file at the facility and maintained until closure of the facility.

[Comment 1: The director, on the basis of any information received that there is or has been a release of hazardous secondary material or hazardous constituents into the environment, may issue an order under section 3734.20 and Chapter 6111. of the Revised Code requiring corrective action or such other response as deemed necessary to protect human health or the environment.]

[Comment 2: 40 CFR Part 302 may require the owner or operator to notify the "National Response Center" of certain releases.]

[Comment 3: 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."]

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3745-51-197**Termination of remanufacturing exclusion - tank systems.**

Hazardous secondary material stored in units more than ninety days after the unit ceases to operate under the remanufacturing exclusion in paragraph (A)(27) of rule 3745-51-04 of the Administrative Code or otherwise ceases to be operated for manufacturing, or for storage of a product or a raw material, then becomes subject to regulation as hazardous waste under Chapters 3745-50 to 3745-57, 3745-65 to 3745-69, 3745-205, 3745-256, 3745-266, and 3745-270 of the Administrative Code, as applicable.

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3745-51-198

Special requirements for ignitable or reactive materials - tank systems.

(A) Ignitable or reactive material shall not be placed in tank systems, unless the material is stored or treated in such a way that the ignitable or reactive material is protected from any material or conditions that may cause the material to ignite or react.

(B) The remanufacturer or other person who stores or treats hazardous secondary material which is ignitable or reactive shall store or treat the hazardous secondary material in a tank that is in compliance with the requirements for the maintenance of protective distances between the material management area and any public ways, streets, alleys, or an adjoining property line that can be built upon as required in the tables in the national fire protection association's (NFPA) "Flammable and Combustible Liquids 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."]

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3745-51-199

Special requirements for incompatible materials - tank systems.

(A) Incompatible materials shall not be placed in the same tank system.

(B) Hazardous secondary material shall not be placed in a tank system that has not been decontaminated and that previously held an incompatible material.

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3745-51-200**Air emission standards - tank systems.**

The remanufacturer or other person who stores or treats the hazardous secondary material shall manage all hazardous secondary material placed in a tank in accordance with the applicable requirements of rules 3745-51-730 to 3745-51-735, 3745-51-750 to 3745-51-764, and 3745-51-780 to 3745-51-789 of the Administrative Code.

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3745-51-400

Applicability - emergency preparedness and response for management of excluded hazardous secondary materials.

Rules 3745-51-400 to 3745-51-420 of the Administrative Code apply to those areas of an entity managing hazardous secondary materials excluded under paragraphs (A)(23) and (A)(24) of rule 3745-51-04 of the Administrative Code where hazardous secondary materials are generated or accumulated on-site.

(A) A generator of hazardous secondary material, or an intermediate or reclamation facility operating under a verified recycler variance under paragraph (D) of rule 3745-50-24 of the Administrative Code, that accumulates six thousand kilograms (kg) or less of hazardous secondary material at any time shall comply with rules 3745-51-410 and 3745-51-411 of the Administrative Code.

(B) A generator of hazardous secondary material, or an intermediate or reclamation facility operating under a verified recycler variance under paragraph (D) of rule 3745-50-24 of the Administrative Code that accumulates more than six thousand kilograms of hazardous secondary material at any time shall comply with rules 3745-51-410 and 3745-51-420 of the Administrative Code.

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3745-51-410

Preparedness and prevention – emergency preparedness and response for management of excluded hazardous secondary materials.

(A) Maintenance and operation of facility. Facilities generating or accumulating hazardous secondary material shall be maintained and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous secondary materials or hazardous secondary material constituents to air, soil, or surface water which could threaten human health or the environment.

(B) Required equipment. All facilities generating or accumulating hazardous secondary material shall be equipped with the following, unless none of the hazards posed by hazardous secondary material handled at the facility could require a particular kind of equipment specified here:

(1) An internal communications or alarm system capable of providing immediate emergency instruction (voice or signal) to facility personnel;

(2) A device, such as a telephone (immediately available at the scene of operations) or a hand-held two-way radio, capable of summoning emergency assistance from local police departments, fire departments, or state or local emergency response teams;

(3) Portable fire extinguishers, fire control equipment (including special extinguishing equipment, such as that using foam, inert gas, or dry chemicals), spill control equipment, and decontamination equipment; and

(4) Water at adequate volume and pressure to supply water hose streams, or foam producing equipment, or automatic sprinklers, or water spray systems.

(C) Testing and maintenance of equipment. All facility communications or alarm systems, fire protection equipment, spill control equipment, and decontamination equipment, where required, shall be tested and maintained as necessary to assure the equipment's proper operation in time of emergency.

(D) Access to communications or alarm system.

(1) Whenever hazardous secondary material is being poured, mixed, spread, or otherwise handled, all personnel involved in the operation shall have immediate access to an internal alarm or emergency communication device, either directly or through visual or voice contact with another employee, unless such a device is not required under paragraph (B) of this rule.

(2) If there is ever just one employee on the premises while the facility is operating, the employee shall have immediate access to a device, such as a telephone (immediately available at the scene of operation) or a hand-held two-way radio, capable of summoning external emergency assistance, unless such a device is not required under paragraph (B) of this rule.

(E) Required aisle space. The hazardous secondary material generator or intermediate or reclamation facility operating under a verified recycler variance under paragraph (D) of rule 3745-50-24 of the Administrative Code shall maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of facility operation in an emergency, unless aisle space is not needed for any of these purposes.

(F) Arrangements with local authorities.

(1) The hazardous secondary material generator or an intermediate or reclamation facility operating under a verified recycler variance under paragraph (D) of rule 3745-50-24 of the Administrative Code shall attempt to make the following arrangements, as appropriate for the type of waste handled at the facility and the potential need for the services of these organizations:

(a) Arrangements to familiarize police, fire departments, and emergency response teams with the layout of the facility, properties of hazardous secondary material handled at the facility and associated hazards, places where facility personnel would normally be working, entrances to roads inside the facility, and possible evacuation routes;

(b) Where more than one police and fire department might respond to an emergency, agreements designating primary emergency authority to a specific police and a specific fire department, and agreements with any others to provide support to the primary emergency authority;

(c) Agreements with state emergency response teams, emergency response contractors, and equipment suppliers; and

(d) Arrangements to familiarize local hospitals with the properties of hazardous waste handled at the facility and the types of injuries or illnesses which could result from fires, explosions, or releases at the facility.

(2) Where state or local authorities decline to enter into such arrangements, the hazardous secondary material generator or an intermediate or reclamation facility operating under a verified recycler variance under paragraph (D) of

rule 3745-50-24 of the Administrative Code shall document the refusal in the operating record.

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3745-51-411

Emergency procedures for facilities generating or accumulating six thousand kilograms or less of hazardous secondary material.

A generator or an intermediate or reclamation facility operating under a verified recycler variance under paragraph (D) of rule 3745-50-24 of the Administrative Code that generates or accumulates six thousand kilograms or less of hazardous secondary material shall comply with the following requirements:

(A) At all times there shall be at least one employee either on the premises or on call (i.e., available to respond to an emergency by reaching the facility within a short period of time) with the responsibility for coordinating all emergency response measures specified in paragraph (D) of this rule. This employee is the emergency coordinator.

(B) The generator or intermediate or reclamation facility operating under a verified recycler variance under paragraph (D) of rule 3745-50-24 of the Administrative Code shall post the following information next to the telephone:

(1) The name and telephone number of the emergency coordinator;

(2) Location of fire extinguishers and spill control material, and, if present, fire alarm; and

(3) The telephone number of the fire department, unless the facility has a direct alarm.

(C) The generator or an intermediate or reclamation facility operating under a verified recycler variance under paragraph (D) of rule 3745-50-24 of the Administrative Code shall ensure that all employees are thoroughly familiar with proper waste handling and emergency procedures, relevant to the employees' responsibilities during normal facility operations and emergencies;

(D) The emergency coordinator or the emergency coordinator's designee shall respond to any emergencies that arise. The applicable responses are as follows:

(1) In the event of a fire, call the fire department or attempt to extinguish the fire using a fire extinguisher;

(2) In the event of a spill, contain the flow of hazardous waste to the extent possible, and as soon as is practicable, clean up the hazardous waste and any contaminated materials or soil;

(3) In the event of a fire, explosion, or other release which could threaten human health outside the facility or when the generator or an intermediate or reclamation facility operating under a verified recycler variance under paragraph (D) of rule 3745-50-24 of the Administrative Code has knowledge that a spill has reached surface water, the generator or an intermediate

or reclamation facility operating under a verified recycler variance under paragraph (D) of rule 3745-50-24 of the Administrative Code shall immediately notify the "National Response Center" using the twenty-four-hour toll free number 800/424-8802. The report shall include the following information:

(a) The name, address, and U.S. EPA identification number of the facility;

(b) Date, time, and type of incident (e.g., spill or fire);

(c) Quantity and type of hazardous waste involved in the incident;

(d) Extent of injuries, if any; and

(e) Estimated quantity and disposition of recovered materials, if any.

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3745-51-420

Contingency planning and emergency procedures for facilities generating or accumulating more than six thousand kilograms of hazardous secondary material.

A generator or an intermediate or reclamation facility operating under a verified recycler variance under paragraph (D) of rule 3745-50-24 of the Administrative Code that generates or accumulates more than six thousand kilograms of hazardous secondary material shall comply with the following requirements:

(A) Purpose and implementation of contingency plan.

- (1) Each generator or an intermediate or reclamation facility operating under a verified recycler variance under paragraph (D) of rule 3745-50-24 of the Administrative Code that accumulates more than six thousand kilograms of hazardous secondary material shall have a contingency plan for the facility. The contingency plan shall be designed to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or non-sudden release of hazardous secondary material or hazardous secondary material constituents to air, soil, or surface water.
- (2) The provisions of the contingency plan shall be carried out immediately whenever there is a fire, explosion, or release of hazardous secondary material or hazardous secondary material constituents which could threaten human health or the environment.

(B) Content of contingency plan.

- (1) The contingency plan shall describe the actions facility personnel shall take to comply with paragraphs (A) and (F) of this rule in response to fires, explosions, or any unplanned sudden or non-sudden release of hazardous secondary material or hazardous secondary material constituents to air, soil, or surface water at the facility.
- (2) If the generator or an intermediate facility or reclamation facility operating under a verified recycler variance under paragraph (D) of rule 3745-50-24 of the Administrative Code accumulating more than six thousand kilograms of hazardous secondary material has already prepared a "Spill Prevention, Control, and Countermeasures (SPCC) Plan" in accordance with 40 CFR Part 112 , or some other emergency plan or contingency plan, that plan need only be amended to incorporate hazardous waste management provisions that are sufficient to comply with the requirements of Chapter 3745-51 of the Administrative Code. The hazardous secondary material generator or an intermediate facility or reclamation facility operating under a verified recycler variance under paragraph (D) of rule 3745-50-24 of the

Administrative Code may develop one contingency plan which meets all regulatory requirements. Ohio EPA recommends that the plan be based on the "National Response Team's Integrated Contingency Plan Guidance ("One Plan")." When modifications are made to non-Resource Conservation and Recovery Act (non-RCRA) provisions in an integrated contingency plan, the changes do not trigger the need for a hazardous waste management permit modification.

- (3) The contingency plan shall describe arrangements agreed to by local police departments, fire departments, hospitals, contractors, and state and local emergency response teams to coordinate emergency services, pursuant to paragraph (F) of rule 3745-51-410 of the Administrative Code.
 - (4) The contingency plan shall list names, addresses, and telephone numbers (office and home) of all persons qualified to act as emergency coordinator [see paragraph (E) of this rule], and this list shall be kept up to date. Where more than one person is listed, one shall be named as primary emergency coordinator and others shall be listed in the order in which to assume responsibility as alternates.
 - (5) The contingency plan shall include a list of all emergency equipment at the facility [such as fire extinguishing systems, spill control equipment, communications and alarm systems (internal and external), and decontamination equipment], where this equipment is required. This list shall be kept up to date. In addition, the contingency plan shall include the location and a physical description of each item on the list, and a brief outline of the capabilities of each item on the list.
 - (6) The contingency plan shall include an evacuation plan for facility personnel where there is a possibility that evacuation could be necessary. This evacuation plan shall describe signals to be used to begin evacuation, evacuation routes, and alternate evacuation routes (in cases where the primary routes could be blocked by releases of hazardous waste or fires).
- (C) Copies of contingency plan. A copy of the contingency plan and all revisions to the contingency plan shall be:
- (1) Maintained at the facility; and
 - (2) Submitted to all local police departments, fire departments, hospitals, and state and local emergency response teams that may be called upon to provide emergency services.

(D) Amendment of contingency plan. The contingency plan shall be reviewed, and immediately amended, if necessary, whenever:

- (1) Applicable regulations are revised;
- (2) The contingency plan fails in an emergency;
- (3) The facility changes in design, construction, operation, maintenance, or other circumstances in a way that materially increases the potential for fires, explosions, or releases of hazardous secondary material or hazardous secondary material constituents, or changes the response necessary in an emergency;
- (4) The list of emergency coordinators changes; or
- (5) The list of emergency equipment changes.

(E) Emergency coordinator. At all times, there shall be at least one employee either on the facility premises or on call (i.e., available to respond to an emergency by reaching the facility within a short period of time) with the responsibility for coordinating all emergency response measures. This emergency coordinator shall be thoroughly familiar with all aspects of the facility's contingency plan, all operations and activities at the facility, the location and characteristics of waste handled, the location of all records within the facility, and the facility layout. In addition, this person shall have the authority to commit the resources needed to carry out the contingency plan. The emergency coordinator's responsibilities are more fully spelled out in paragraph (F) of this rule. Applicable responsibilities for the emergency coordinator vary, depending on factors such as type and variety of hazardous secondary materials handled by the facility, and type and complexity of the facility.

(F) Emergency procedures.

- (1) Whenever there is an imminent or actual emergency situation, the emergency coordinator (or the emergency coordinator's designee when the emergency coordinator is on call) shall immediately:
 - (a) Activate internal facility alarms or communication systems, where applicable, to notify all facility personnel; and
 - (b) Notify appropriate state or local agencies with designated response roles if help is needed from those agencies.
- (2) Whenever there is a release, fire, or explosion, the emergency coordinator shall immediately identify the character, exact source, amount, and areal extent of any released materials. The emergency coordinator may do this by observation

or review of facility records or manifests and, if necessary, by chemical analysis.

- (3) Concurrently, the emergency coordinator shall assess possible hazards to human health or the environment that may result from the release, fire, or explosion. This assessment shall consider both direct and indirect effects of the release, fire, or explosion (e.g., the effects of any toxic, irritating, or asphyxiating gases that are generated, or the effects of any hazardous surface water run-offs from water or chemical agents used to control fire and heat-induced explosions).
- (4) If the emergency coordinator determines that the facility has had a release, fire, or explosion which could threaten human health, or the environment, outside the facility, the emergency coordinator shall report those findings as follows:
- (a) If the emergency coordinator's assessment indicates that evacuation of local areas may be advisable, the emergency coordinator shall immediately notify appropriate local authorities. The emergency coordinator shall be available to help appropriate officials decide whether local areas should be evacuated; and
- (b) The emergency coordinator shall immediately notify either the government official designated as the on-scene coordinator for that geographical area, or the "National Response Center" using the twenty-four-hour toll-free number 800/424-8802. The report shall include:
- (i) Name and telephone number of the reporter of the emergency;
- (ii) Name and address of facility;
- (iii) Time and type of incident (e.g., release, fire);
- (iv) Name and quantity of materials involved, to the extent known;
- (v) The extent of injuries, if any; and
- (vi) The possible hazards to human health, or the environment, outside the facility.
- (5) During an emergency, the emergency coordinator shall take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous secondary material at the facility. These measures shall include, where applicable, stopping processes and operations, collecting and containing released material, and removing or isolating containers.

- (6) If the facility stops operations in response to a fire, explosion or release, the emergency coordinator shall monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment, wherever this is appropriate.
- (7) Immediately after an emergency, the emergency coordinator shall provide for treating, storing, or disposing of recovered secondary material, contaminated soil or surface water, or any other material that results from a release, fire, or explosion at the facility. Unless the hazardous secondary material generator can demonstrate, in accordance with paragraph (C) or (D) of rule 3745-51-03 of the Administrative Code, that the recovered material is not a hazardous waste, the owner or operator becomes a generator of hazardous waste and shall manage the hazardous waste in accordance with all applicable requirements of Chapters 3745-52, 3745-53, 3745-65 to 3745-69, and 3745-256 of the Administrative Code.
- (8) The emergency coordinator shall ensure that, in the affected areas of the facility:
- (a) No secondary material that may be incompatible with the released material is treated, stored, or disposed of until cleanup procedures are completed; and
 - (b) All emergency equipment listed in the contingency plan is cleaned and fit for the intended use of the equipment before operations are resumed.
- (9) The hazardous secondary material generator shall note in the operating record the time, date, and details of any incident that requires implementing the contingency plan. Within fifteen days after the incident, the hazardous secondary material generator shall submit a written report on the incident to the director. The report shall include:
- (a) Name, address, and telephone number of the hazardous secondary material generator;
 - (b) Name, address, and telephone number of the facility;
 - (c) Date, time, and type of incident (e.g., fire, explosion);
 - (d) Name and quantity of materials involved;
 - (e) The extent of injuries, if any;
 - (f) An assessment of actual or potential hazards to human health or the environment, where this is applicable; and

(g) Estimated quantity and disposition of recovered material that resulted from the incident.

(G) Personnel training. All employees shall be thoroughly familiar with proper waste handling and emergency procedures relevant to the employee's responsibilities during normal facility operations and emergencies.

[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."]

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3745-51-730**Applicability - air emission standards for process vents.**

Rules 3745-51-730 to 3745-51-735 of the Administrative Code apply to process vents associated with distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations that manage hazardous secondary materials excluded under the remanufacturing exclusion in paragraph (A)(27) of rule 3745-51-04 of the Administrative Code with concentrations of at least ten parts per million by weight unless the process vents are equipped with operating air emission controls in accordance with the requirements of an applicable Clean Air Act regulation codified under 40 CFR Part 60, Part 61, or Part 63.

[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."]

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3745-51-731**Definitions - air emission standards for process vents.**

As used in rules 3745-51-730 to 3745-51-735 of the Administrative Code, all terms not defined herein have the meanings given in the Resource Conservation and Recovery Act and Chapters 3745-50 to 3745-57, 3745-65 to 3745-69, 3745-205, 3745-256, and 3745-266 of the Administrative Code.

(A) "Air stripping operation" is a desorption operation employed to transfer one or more volatile components from a liquid mixture into a gas (air) either with or without the application of heat to the liquid. Packed towers, spray towers, and bubble-cap, sieve, or valve-type plate towers are among the process configurations used for contacting the air and a liquid.

(B) "Bottoms receiver" means a container or tank used to receive and collect the heavier bottoms fractions of the distillation feed stream that remain in the liquid phase.

(C)

(1) "Closed-vent system" means a system that is not open to the atmosphere and that is composed of piping, connections, and, if necessary, flow-inducing devices that transport gas or vapor from a piece or pieces of equipment to a control device.

(2) "Condenser" means a heat-transfer device that reduces a thermodynamic fluid from its vapor phase to its liquid phase.

(3) "Connector" means flanged, screwed, welded, or other joined fittings used to connect two pipelines or a pipeline and a piece of equipment. For the purposes of reporting and recordkeeping, connector means flanged fittings that are not covered by insulation or other materials that prevent location of the fittings.

(4) "Continuous recorder" means a data-recording device recording an instantaneous data value at least once every fifteen minutes.

(5) "Control device" means an enclosed combustion device, vapor recovery system, or flare. Any device the primary function of which is the recovery or capture of solvents or other organics for use, reuse, or sale (e.g., a primary condenser on a solvent recovery unit) is not a control device.

(6) "Control device shutdown" means the cessation of operation of a control device for any purpose.

(D)

(1) "Distillate receiver" means a container or tank used to receive and collect liquid material (condensed) from the overhead condenser of a distillation unit and

from which the condensed liquid is pumped to larger storage tanks or other process units.

(2) "Distillation operation" means an operation, either batch or continuous, separating one or more feed streams into two or more exit streams, each exit stream having component concentrations different from those in the feed streams. The separation is achieved by the redistribution of the components between the liquid and vapor phase as the components approach equilibrium within the distillation unit.

(3) "Double block and bleed system" means two block valves connected in series with a bleed valve or line that can vent the line between the two block valves.

(E) "Equipment" means each valve, pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, or flange or other connector, and any control devices or systems required by rules 3745-51-730 to 3745-51-735 of the Administrative Code.

(F)

(1) "Flame zone" means the portion of the combustion chamber in a boiler occupied by the flame envelope.

(2) "Flow indicator" means a device that indicates whether gas flow is present in a vent stream.

(3) "First attempt at repair" means to take rapid action for the purpose of stopping or reducing leakage of organic material to the atmosphere using best practices.

(4) "Fractionation operation" means a distillation operation or method used to separate a mixture of several volatile components of different boiling points in successive stages, each stage removing from the mixture some proportion of one of the components.

(G) [Reserved.]

(H)

(1) "Hazardous secondary material management unit shutdown" means a work practice or operational procedure that stops operation of a hazardous secondary material management unit or part of a hazardous secondary material management unit. An unscheduled work practice or operational procedure that stops operation of a hazardous secondary material management unit or part of a hazardous secondary material management unit for less than twenty-four hours

is not a hazardous secondary material management unit shutdown. The use of spare equipment and technically feasible bypassing of equipment without stopping operation are not hazardous secondary material management unit shutdowns.

(2) "Hot well" means a container for collecting condensate as in a steam condenser serving a vacuum-jet or steam-jet ejector.

(I)

(1) "In gas or vapor service" means that the piece of equipment contains or contacts a hazardous secondary material stream that is in the gaseous state at operating conditions.

(2) "In heavy liquid service" means that the piece of equipment is not in gas or vapor service or in light liquid service.

(3) "In light liquid service" means that the piece of equipment contains or contacts a material stream where the vapor pressure of one or more of the organic components in the stream is greater than 0.3 kilopascals (kPa) at twenty degrees Celsius, the total concentration of the pure organic components having a vapor pressure greater than 0.3 kPa at twenty degrees Celsius is equal to or greater than twenty per cent by weight, and the fluid is a liquid at operating conditions.

(4) "In situ sampling systems" means non-extractive samplers or in-line samplers.

(5) "In vacuum service" means that equipment is operating at an internal pressure that is at least five kPa below ambient pressure.

(J) [Reserved.]

(K) [Reserved.]

(L) [Reserved.]

(M) "Malfunction" means any sudden failure of a control device or a hazardous secondary material management unit or failure of a hazardous secondary material management unit to operate in a normal or usual manner, so that organic emissions are increased.

(N) [Reserved.]

(O) "Open-ended valve or line" means any valve, except pressure relief valves, having one side of the valve seat in contact with hazardous secondary material and one side open to the atmosphere, either directly or through open piping.

(P)

- (1) "Pressure release" means the emission of materials resulting from the system pressure being greater than the set pressure of the pressure relief device.
- (2) "Process heater" means a device that transfers heat liberated by burning fuel to fluids contained in tubes, including all fluids except water that are heated to produce steam.
- (3) "Process vent" means any open-ended pipe or stack that is vented to the atmosphere either directly, through a vacuum-producing system, or through a tank (e.g., distillate receiver, condenser, bottoms receiver, surge control tank, separator tank, or hot well) associated with hazardous secondary material distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations.

(Q) [Reserved.]

(R) "Repaired" means that equipment is adjusted, or otherwise altered, to eliminate a leak.

(S)

- (1) "Sampling connection system" means an assembly of equipment within a process or material management unit used during periods of representative operation to take samples of the process or material fluid. Equipment used to take non-routine grab samples is not considered a sampling connection system.
- (2) "Sensor" means a device that measures a physical quantity or the change in a physical quantity, such as temperature, pressure, flow rate, pH, or liquid level.
- (3) "Separator tank" means a device used for separation of two immiscible liquids.
- (4) "Solvent extraction operation" means an operation or method of separation in which a solid or solution is contacted with a liquid solvent (the two being mutually insoluble) to preferentially dissolve and transfer one or more components into the solvent.
- (5) "Startup" means the setting in operation of a hazardous secondary material management unit or control device for any purpose.
- (6) "Steam stripping operation" means a distillation operation in which vaporization of the volatile constituents of a liquid mixture takes place by the introduction of steam directly into the charge.

(7) "Surge control tank" means a large-sized pipe or storage reservoir sufficient to contain the surging liquid discharge of the process tank to which the pipe or storage reservoir is connected.

(T) "Thin-film evaporation operation" means a distillation operation that employs a heating surface consisting of a large diameter tube that may be either straight or tapered, horizontal or vertical. Liquid is spread on the tube wall by a rotating assembly of blades that maintain a close clearance from the wall or actually ride on the film of liquid on the wall.

(U) [Reserved.]

(V)

(1) "Vapor incinerator" means any enclosed combustion device that is used for destroying organic compounds and does not extract energy in the form of steam or process heat.

(2) "Vented" means discharged through an opening, typically an open-ended pipe or stack, allowing the passage of a stream of liquids, gases, or fumes into the atmosphere. The passage of liquids, gases, or fumes is caused by mechanical means such as compressors or vacuum-producing systems or by process-related means such as evaporation produced by heating and not caused by tank loading and unloading (working losses) or by natural means such as diurnal temperature changes.

[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."]

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3745-51-732**Emission standards for process vents.**

- (A) The remanufacturer or other person who stores or treats hazardous secondary materials in hazardous secondary material management units with process vents associated with distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations managing hazardous secondary material with organic concentrations of at least ten parts per million by weight shall either:
- (1) Reduce total organic emissions from all affected process vents at the facility below 1.4 kilograms per hour (kg/hr) [three pounds per hour (lb/hr)] and 2.8 Megagrams per year (Mg/yr) [3.1 tons per year (tons/yr)]; or
 - (2) Reduce, by use of a control device, total organic emissions from all affected process vents at the facility by ninety-five weight per cent.
- (B) If the remanufacturer or other person who stores or treats the hazardous secondary material installs a closed-vent system and control device to comply with paragraph (A) of this rule the closed-vent system and control device shall meet the requirements of rule 3745-51-733 of the Administrative Code.
- (C) Determinations of vent emissions and emission reductions or total organic compound concentrations achieved by add-on control devices may be based on engineering calculations or performance tests. If performance tests are used to determine vent emissions, emission reductions, or total organic compound concentrations achieved by add-on control devices, the performance tests must conform with the requirements of paragraph (C) of rule 3745-51-734 of the Administrative Code.
- (D) When a remanufacturer or other person who stores or treats the hazardous secondary material and the director do not agree on determinations of vent emissions or emission reductions or total organic compound concentrations achieved by add-on control devices based on engineering calculations, the procedures in paragraph (C) of rule 3745-51-734 of the Administrative Code shall be used to resolve the disagreement.

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3745-51-733**Closed-vent systems and control devices - process vents.**(A)

(1) The remanufacturer or other person who stores or treats the hazardous secondary materials in hazardous secondary material management units using closed-vent systems and control devices used to comply with Chapter 3745-51 of the Administrative Code shall comply with this rule.

(2) [Reserved.]

(B) A control device involving vapor recovery (e.g., a condenser or adsorber) shall be designed and operated to recover the organic vapors vented to the control device with an efficiency of ninety-five weight per cent or greater unless the total organic emission limits of paragraph (A)(1) of rule 3745-51-732 of the Administrative Code for all affected process vents can be attained at an efficiency less than ninety-five weight per cent.

(C) An enclosed combustion device (e.g., a vapor incinerator, boiler, or process heater) shall be designed and operated to reduce the organic emissions vented to the enclosed combustion device by ninety-five weight per cent or greater; to achieve a total organic compound concentration of twenty parts per million by volume (ppmv), expressed as the sum of the actual compounds, not carbon equivalents, on a dry basis corrected to three per cent oxygen; or to provide a minimum residence time of 0.5 seconds at a minimum temperature of seven hundred sixty degrees Celsius. If a boiler or process heater is used as the control device, then the vent stream shall be introduced into the flame zone of the boiler or process heater.

(D)

(1) A flare shall be designed for and operated with no visible emissions as determined by the methods specified in paragraph (E)(1) of this rule, except for periods not to exceed a total of five minutes during any two consecutive hours.

(2) A flare shall be operated with a flame present at all times, as determined by the methods specified in paragraph (F)(2)(c) of this rule.

(3) A flare shall be used only if the net heating value of the gas being combusted is 11.2 MegaJoules per standard cubic meter of gas (MJ/scm) [three hundred British thermal units per standard cubic foot (Btu/scf)] or greater if the flare is steam-assisted or air-assisted; or if the net heating value of the gas being combusted is 7.45 MJ/scm (two hundred Btu/scf) or greater if the flare is non-assisted. The net heating value of the gas being combusted shall be determined by the methods specified in paragraph (E)(2) of this rule.

(4)

- (a) A steam-assisted or non-assisted flare shall be designed for and operated with an exit velocity, as determined by the methods specified in paragraph (E)(3) of this rule, less than 18.3 meters per second (m/s) [sixty feet per second (ft/s)], except as provided in paragraph (D)(4)(b) and paragraph (D)(4)(c) of this rule.
 - (b) A steam-assisted or non-assisted flare designed for and operated with an exit velocity, as determined by the methods specified in paragraph (E)(3) of this rule, equal to or greater than 18.3 m/s (sixty ft/s) but less than one hundred twenty-two m/s (four hundred ft/s) is allowed if the net heating value of the gas being combusted is greater than 37.3 MJ/scm (one thousand Btu/scf).
 - (c) A steam-assisted or non-assisted flare designed for and operated with an exit velocity, as determined by the methods specified in paragraph (E)(3) of this rule, less than the velocity, V_{max} , as determined by the method specified in paragraph (E)(4) of this rule and less than one hundred twenty-two m/s (four hundred ft/s) is allowed.
- (5) An air-assisted flare shall be designed and operated with an exit velocity less than the velocity, V_{max} , as determined by the method specified in paragraph (E)(5) of this rule.
- (6) A flare used to comply with this rule shall be steam-assisted, air-assisted, or non-assisted.

(E)

- (1) Reference method 22 in 40 CFR Part 60 shall be used to determine the compliance of a flare with the visible emission provisions of rules 3745-51-730 to 3745-51-735 of the Administrative Code. The observation period is two hours and shall be used according to method 22.
- (2) The net heating value of the gas being combusted in a flare shall be calculated using the following equation:

$$H_T = K \left[\sum_{i=1}^n C_i H_i \right]$$

Where:

H_T = Net heating value of the sample, MJ/scm; where the net enthalpy per mole of offgas is based on combustion at twenty-five degrees Celsius and seven hundred sixty millimeters of mercury (mm Hg), but the standard temperature for determining the volume corresponding to one mole (mol) is twenty degrees Celsius;

K = Constant, 1.74×10^{-7} (1/ppm) (g mol/scm) (MJ/kcal) where standard temperature for (g mol/scm) is twenty degrees Celsius; ppm means parts per million, g mol/scm means gram mole per standard cubic meter of gas, MJ/kcal means MegaJoules per kilocalorie;

C_i = Concentration of sample component i in ppm on a wet basis, as measured for organics by reference method 18 in 40 CFR Part 60 and measured for hydrogen and carbon monoxide by ASTM D1946-82; and

H_i = Net heat of combustion of sample component i , kcal/nine mol at twenty-five degrees Celsius and seven hundred sixty mm Hg. The heats of combustion may be determined using ASTM D2382-83 if published values are not available or cannot be calculated.

- (3) The actual exit velocity of a flare shall be determined by dividing the volumetric flow rate (in units of standard temperature and pressure), as determined by reference method 2, method 2A, method 2C, or method 2D in 40 CFR Part 60 as appropriate, by the unobstructed (free) cross-sectional area of the flare tip.
- (4) The maximum allowed velocity in m/s, V_{max} , for a flare complying with paragraph (D)(4)(c) of this rule shall be determined by the following equation:

$$\text{Log}_{10}(V_{max}) = \frac{(H_T + 28.8)}{31.7}$$

Where:

28.8 = Constant

31.7 = Constant.

H_T = The net heating value as determined in paragraph (E)(2) of this rule.

(5) The maximum allowed velocity in m/s, V max , for an air-assisted flare shall be determined by the following equation:

$$\underline{V_{\max} = 8.706 + 0.7084(H_T)}$$

Where:

8.706 = Constant.

0.7084 = Constant.

H_T = The net heating value as determined in paragraph (E)(2) of this rule.

(F) The remanufacturer or other person who stores or treats the hazardous secondary material shall monitor and inspect each control device required to comply with this rule to ensure proper operation and maintenance of the control device by implementing the following requirements:

- (1) Install, calibrate, maintain, and operate according to the manufacturer's specifications a flow indicator that provides a record of vent stream flow from each affected process vent to the control device at least once every hour. The flow indicator sensor shall be installed in the vent stream at the nearest feasible point to the control device inlet but before the point at which the vent streams are combined.
- (2) Install, calibrate, maintain, and operate according to the manufacturer's specifications a device to continuously monitor control device operation as specified where:
 - (a) For a thermal vapor incinerator, a temperature monitoring device equipped with a continuous recorder. The device shall have an accuracy of plus or minus one per cent of the temperature being monitored in degrees Celsius or plus or minus 0.5 degrees Celsius, whichever is greater. The temperature sensor shall be installed at a location in the combustion chamber downstream of the combustion zone.

- (b) For a catalytic vapor incinerator, a temperature monitoring device equipped with a continuous recorder. The device shall be capable of monitoring temperature at two locations and have an accuracy of plus or minus one per cent of the temperature being monitored in degrees Celsius or plus or minus 0.5 degrees Celsius, whichever is greater. One temperature sensor shall be installed in the vent stream at the nearest feasible point to the catalyst bed inlet and a second temperature sensor shall be installed in the vent stream at the nearest feasible point to the catalyst bed outlet.
- (c) For a flare, a heat sensing monitoring device equipped with a continuous recorder that indicates the continuous ignition of the pilot flame.
- (d) For a boiler or process heater having a design heat input capacity less than forty-four megawatts (MW), a temperature monitoring device equipped with a continuous recorder. The device shall have an accuracy of plus or minus one per cent of the temperature being monitored in degrees Celsius or plus or minus 0.5 degrees Celsius, whichever is greater. The temperature sensor shall be installed at a location in the furnace downstream of the combustion zone.
- (e) For a boiler or process heater having a design heat input capacity greater than or equal to forty-four MW, a monitoring device equipped with a continuous recorder to measure a parameters that indicates good combustion operating practices are being used.
- (f) For a condenser, either:
- (i) A monitoring device equipped with a continuous recorder to measure the concentration level of the organic compounds in the exhaust vent stream from the condenser; or
 - (ii) A temperature monitoring device equipped with a continuous recorder. The device shall be capable of monitoring temperature with an accuracy of plus or minus one per cent of the temperature being monitored in degrees Celsius or plus or minus 0.5 degrees Celsius, whichever is greater. The temperature sensor shall be installed at a location in the exhaust vent stream from the condenser exit (i.e., product side).
- (g) For a carbon adsorption system that regenerates the carbon bed directly in the control device such as a fixed-bed carbon adsorber, either:

- (i) A monitoring device equipped with a continuous recorder to measure the concentration level of the organic compounds in the exhaust vent stream from the carbon bed; or
 - (ii) A monitoring device equipped with a continuous recorder to measure a parameter that indicates the carbon bed is regenerated on a regular, predetermined time cycle.
- (3) Inspect the readings from each monitoring device required by paragraphs (F)(1) and (F)(2) of this rule at least once each operating day to check control device operation and, if necessary, immediately implement the corrective measures necessary to ensure the control device operates in compliance with the requirements of this rule.
- (G) A remanufacturer or other person who stores or treats hazardous secondary material in a hazardous secondary material management unit using a carbon adsorption system such as a fixed-bed carbon adsorber that regenerates the carbon bed directly onsite in the control device shall replace the existing carbon in the control device with fresh carbon at a regular, predetermined time interval that is no longer than the carbon service life established as a requirement of paragraph (B)(4)(c)(vi) of rule 3745-51-735 of the Administrative Code.
- (H) A remanufacturer or other person who stores or treats hazardous secondary material in a hazardous secondary material management unit using a carbon adsorption system such as a carbon canister that does not regenerate the carbon bed directly onsite in the control device shall replace the existing carbon in the control device with fresh carbon on a regular basis by using one of the following procedures:
 - (1) Monitor the concentration level of the organic compounds in the exhaust vent stream from the carbon adsorption system on a regular schedule, and replace the existing carbon with fresh carbon immediately when carbon breakthrough is indicated. The monitoring frequency shall be daily or at an interval no greater than twenty per cent of the time required to consume the total carbon working capacity established as a requirement of paragraph (B)(4)(c)(vii) of rule 3745-51-735 of the Administrative Code, whichever is longer.
 - (2) Replace the existing carbon with fresh carbon at a regular, predetermined time interval that is less than the design carbon replacement interval established as a requirement of paragraph (B)(4)(c)(vii) of rule 3745-51-735 of the Administrative Code.

- (I) An alternative operational or process parameter may be monitored if it can be demonstrated that another parameter will ensure that the control device is operated in conformance with these standards and the control device's design specifications.
- (J) A remanufacturer or other person who stores or treats hazardous secondary material at an affected facility seeking to comply with Chapter 3745-51 of the Administrative Code by using a control device other than a thermal vapor incinerator, catalytic vapor incinerator, flare, boiler, process heater, condenser, or carbon adsorption system is required to develop documentation including sufficient information to describe the control device operation and identify the process parameter or parameters that indicate proper operation and maintenance of the control device.
- (K) A closed-vent system shall meet either of the following design requirements:
- (1) A closed-vent system shall be designed to operate with no detectable emissions, as indicated by an instrument reading of less than five hundred ppmv (parts per million by volume) above background as determined by the procedure in paragraph (B) of rule 3745-51-734 of the Administrative Code, and by visual inspections; or
 - (2) A closed-vent system shall be designed to operate at a pressure below atmospheric pressure. The system shall be equipped with at least one pressure gauge or other pressure measurement device that can be read from a readily accessible location to verify that negative pressure is being maintained in the closed-vent system when the control device is operating.
- (L) The remanufacturer or other person who stores or treats the hazardous secondary material shall monitor and inspect each closed-vent system required to comply with this rule to ensure proper operation and maintenance of the closed-vent system by implementing the following requirements:
- (1) Each closed-vent system that is used to comply with paragraph (K)(1) of this rule shall be inspected and monitored in accordance with the following requirements:
 - (a) An initial leak detection monitoring of the closed-vent system shall be conducted by the remanufacturer or other person who stores or treats the hazardous secondary material on or before the date that the system becomes subject to this rule. The remanufacturer or other person who stores or treats the hazardous secondary material shall monitor the closed-vent system components and connections using the procedures specified in paragraph (B) of rule 3745-51-734 of the Administrative Code to demonstrate that the closed-vent system operates with no detectable

emissions, as indicated by an instrument reading of less than five hundred ppmv above background.

(b) After initial leak detection monitoring required in paragraph (L)(1)(b) of this rule, the remanufacturer or other person who stores or treats the hazardous secondary material shall inspect and monitor the closed-vent system as follows:

(i) Closed-vent system joints, seams, or other connections that are permanently or semi-permanently sealed (e.g., a welded joint between two sections of hard piping or a bolted and gasketed ducting flange) shall be visually inspected at least once per year to check for defects that could result in air pollutant emissions. The remanufacturer or other person who stores or treats the hazardous secondary material shall monitor a component or connection using the procedures specified in paragraph (B) of rule 3745-51-734 of the Administrative Code to demonstrate that the component or connection operates with no detectable emissions following any time the component is repaired or replaced (e.g., a section of damaged hard piping is replaced with new hard piping) or the connection is unsealed (e.g., a flange is unbolted).

(ii) Closed-vent system components or connections other than those specified in paragraph (L)(1)(b)(i) of this rule shall be monitored annually and at other times as requested by the director, except as provided for in paragraph (O) of this rule, using the procedures specified in paragraph (B) of rule 3745-51-734 of the Administrative Code to demonstrate that the components or connections operate with no detectable emissions.

(c) In the event that a defect or leak is detected, the remanufacturer or other person who stores or treats the hazardous secondary material shall repair the defect or leak in accordance with the requirements of paragraph (L)(3) of this rule.

(d) The remanufacturer or other person who stores or treats the hazardous secondary material shall maintain a record of the inspection and monitoring in accordance with the requirements specified in rule 3745-51-735 of the Administrative Code.

(2) Each closed-vent system that is used to comply with paragraph (K)(2) of this rule shall be inspected and monitored in accordance with the following requirements:

- (a) The closed-vent system shall be visually inspected by the remanufacturer or other person who stores or treats the hazardous secondary material to check for defects that could result in air pollutant emissions. Defects include, but are not limited to, visible cracks, holes, or gaps in ductwork or piping or loose connections.
 - (b) The remanufacturer or other person who stores or treats the hazardous secondary material shall perform an initial inspection of the closed-vent system on or before the date that the system becomes subject to this rule. Thereafter, the remanufacturer or other person who stores or treats the hazardous secondary material shall perform the inspections at least once every year.
 - (c) In the event that a defect or leak is detected, the remanufacturer or other person who stores or treats the hazardous secondary material shall repair the defect in accordance with the requirements of paragraph (L)(3) of this rule.
 - (d) The remanufacturer or other person who stores or treats the hazardous secondary material shall maintain a record of the inspection and monitoring in accordance with the requirements specified in rule 3745-51-735 of the Administrative Code.
- (3) The remanufacturer or other person who stores or treats the hazardous secondary material shall repair all detected defects as follows:
- (a) Detectable emissions, as indicated by visual inspection, or by an instrument reading greater than five hundred ppmv above background, shall be controlled as soon as practicable, but not later than fifteen calendar days after the emission is detected, except as provided for in paragraph (L)(3)(c) of this rule.
 - (b) A first attempt at repair shall be made no later than five calendar days after the emission is detected.
 - (c) Delay of repair of a closed-vent system for which leaks have been detected is allowed if the repair is technically infeasible without a process unit shutdown, or if the remanufacturer or other person who stores or treats the hazardous secondary material determines that emissions resulting from immediate repair would be greater than the fugitive emissions likely to result from delay of repair. Repair of such equipment shall be completed by the end of the next process unit shutdown.

- (d) The remanufacturer or other person who stores or treats the hazardous secondary material shall maintain a record of the defect repair in accordance with the requirements specified in rule 3745-51-735 of the Administrative Code.
- (M) Closed-vent systems and control devices used to comply with rules 3745-51-730 to 3745-51-735 of the Administrative Code shall be operated at all times when emissions may be vented to them.
- (N) The owner or operator using a carbon adsorption system to control air pollutant emissions shall document that all carbon that is a hazardous waste and that is removed from the control device is managed in one of the following manners, regardless of the average volatile organic concentration of the carbon:
- (1) Regenerated or reactivated in a thermal treatment unit that meets one of the following:
- (a) The owner or operator of the unit has been issued a final hazardous waste management permit under rules 3745-50-40 to 3745-50-235 of the Administrative Code which implements the requirements of rules 3745-57-90 to 3745-57-93 of the Administrative Code; or
- (b) The unit is equipped with and operating air emission controls in accordance with the applicable requirements of rules 3745-51-730 to 3745-51-735, and 3745-51-780 to 3745-51-789, of the Administrative Code, or rules 3745-256-30 to 3745-256-35, and 3745-256-80 to 3745-256-90 of the Administrative Code; or
- (c) The unit is equipped with and operating air emission controls in accordance with a national emission standard for hazardous air pollutants under 40 CFR Part 61 or 40 CFR Part 63.
- (2) Incinerated in a hazardous waste incinerator for which the owner or operator either:
- (a) Has been issued a final hazardous waste management permit under rules 3745-50-40 to 3745-50-235 of the Administrative Code, which implements the requirements of rules 3745-57-40 to 3745-57-51 of the Administrative Code; or
- (b) Has designed and operates the incinerator in accordance with the interim standards requirements of rules 3745-68-40 to 3745-68-52 of the Administrative Code.

(3) Burned in a boiler or industrial furnace for which the owner or operator either:

(a) Has been issued a final hazardous waste management permit under rules 3745-50-40 to 3745-50-235 of the Administrative Code which implements the requirements of rules 3745-266-100 to 3745-266-112 of the Administrative Code; or

(b) Has designed and operates the boiler or industrial furnace in accordance with the interim standards requirements of rules 3745-266-100 to 3745-266-112 of the Administrative Code.

(O) Any components of a closed-vent system that are designated, as described in paragraph (C)(9) of rule 3745-51-735 of the Administrative Code, as unsafe to monitor are exempt from the requirements of paragraph (L)(1)(b)(ii) of this rule if:

(1) The remanufacturer or other person who stores or treats the hazardous secondary material in a hazardous secondary material management unit using a closed-vent system determines that the components of the closed-vent system are unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with paragraph (L)(1)(b)(ii) of this rule; and

(2) The remanufacturer or other person who stores or treats the hazardous secondary material in a hazardous secondary material management unit using a closed-vent system adheres to a written plan that requires monitoring the closed-vent system components using the procedure specified in paragraph (L)(1)(b)(ii) of this rule as frequently as practicable during safe-to-monitor times.

[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."]

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3745-51-734**Test methods and procedures - process vents.**

- (A) Each remanufacturer or other person who stores or treats the hazardous secondary material subject to rules 3745-51-730 to 3745-51-735 of the Administrative Code shall comply with the test methods and procedural requirements provided in this rule.
- (B) When a closed-vent system is tested for compliance with no detectable emissions, as required in paragraph (L) of rule 3745-51-733 of the Administrative Code, the test shall comply with the following requirements:
- (1) Monitoring shall comply with reference method 21 in 40 CFR Part 60.
 - (2) The detection instrument shall meet the performance criteria of reference method 21.
 - (3) The instrument shall be calibrated before use on each day of the instrument's use by the procedures specified in reference method 21.
 - (4) Calibration gases shall be:
 - (a) Zero air (less than ten parts per million (ppm) of hydrocarbon in air).
 - (b) A mixture of methane or n-hexane and air at a concentration of approximately, but less than, ten thousand ppm methane or n-hexane.
 - (5) The background level shall be determined as provided in reference method 21.
 - (6) The instrument probe shall be traversed around all potential leak interfaces as close to the interface as possible as described in reference method 21.
 - (7) The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared with five hundred ppm for determining compliance.
- (C) Performance tests to determine compliance with paragraph (A) of rule 3745-51-732 of the Administrative Code and with the total organic compound concentration limit of paragraph (C) of rule 3745-51-733 of the Administrative Code shall comply with the following:
- (1) Performance tests to determine total organic compound concentrations and mass flow rates entering and exiting control devices shall be conducted and data reduced in accordance with the following reference methods and calculation procedures:
 - (a) Method 2 in 40 CFR Part 60 for velocity and volumetric flow rate.

- (b) Method 18 or method 25A in 40 CFR Part 60, appendix A, for organic content. If method 25A is used, the organic hazardous air pollutants (HAP) used as the calibration gas shall be the single organic HAP representing the largest per cent by volume of the emissions. The use of method 25A is acceptable if the response from the high-level calibration gas is at least twenty times the standard deviation of the response from the zero calibration gas when the instrument is zeroed on the most sensitive scale.
- (c) Each performance test shall consist of three separate runs; each run conducted for at least one hour under the conditions that exist when the hazardous secondary material management unit is operating at the highest load or capacity level reasonably expected to occur. For the purpose of determining total organic compound concentrations and mass flow rates, the average of results of all runs shall apply. The average shall be computed on a time-weighted basis.
- (d) Total organic mass flow rates shall be determined by the following equation:
- (i) For sources utilizing method 18.

$$E_h = Q_{2sd} \left\{ \sum_{i=1}^n C_i MW_i \right\} [0.0416][10^{-6}]$$

Where:

E_h = Total organic mass flow rate, kilograms per hour (kg/h);

Q_{2sd} = Volumetric flow rate of gases entering or exiting control device, as determined by method 2, standard cubic meter of dry gas per hour (dscm/h);

n = Number of organic compounds in the vent gas;

C_i = Organic concentration in ppm, dry basis, of compound i in the vent gas, as determined by method 18;

MW_i = Molecular weight of organic compound i in the vent gas, kilogram per kilogram mole (kg/kg-mol);

0.0416 = Conversion factor for molar volume, kilogram mole per cubic meter (kg-mol/m³) [at two hundred ninety-three Kelvin and seven hundred sixty milligrams of mercury (mm Hg)];

10⁻⁶ = Conversion from ppm.

(ii) For sources utilizing method 25A.

$$E_h = (Q)(C)(MW)(0.0416)(10^{-6})$$

Where:

E_h = Total organic mass flow rate, kg/h;

Q = Volumetric flow rate of gases entering or exiting control device, as determined by method 2, dscm/h;

C = Organic concentration in ppm, dry basis, as determined by method 25A;

MW = Molecular weight of propane, 44;

0.0416 = Conversion factor for molar volume, kg-mol/m³ [at two hundred ninety-three Kelvin and seven hundred sixty mm Hg];

10⁻⁶ = Conversion from ppm.

(e) The annual total organic emission rate shall be determined by the following equation:

$$E_A = (E_h)(H)$$

Where:

E_A = Total organic mass emission rate, kilograms per year (kg/y);

E_h = Total organic mass flow rate for the process vent, kg/h;

H = Total annual hours of operations for the affected unit, h.

(f) Total organic emissions from all affected process vents at the facility shall be determined by summing the hourly total organic mass emission rates [E_h, as determined in paragraph (C)(1)(d) of this rule] and by summing the

annual total organic mass emission rates [E_A, as determined in paragraph (C)(1)(e) of this rule] for all affected process vents at the facility.

- (2) The remanufacturer or other person who stores or treats the hazardous secondary material shall record such process information as may be necessary to determine the conditions of the performance tests. Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test.
 - (3) The remanufacturer or other person who stores or treats the hazardous secondary material at an affected facility shall provide, or cause to be provided, performance testing facilities as follows:

 - (a) Sampling ports adequate for the test methods specified in paragraph (C)(1) of this rule.
 - (b) Safe sampling platforms.
 - (c) Safe access to sampling platforms.
 - (d) Utilities for sampling and testing equipment.
 - (4) For the purpose of making compliance determinations, the time-weighted average of the results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs shall be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the remanufacturer's or other person's that stores or treats the hazardous secondary material control, compliance may, upon the director's approval, be determined using the average of the results of the two other runs.
- (D) To show that a process vent associated with a hazardous secondary material distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operation is not subject to the requirements of rules 3745-51-730 to 3745-51-735 of the Administrative Code, the remanufacturer or other person who stores or treats the hazardous secondary material shall make an initial determination that the time-weighted, annual average total organic concentration of the material managed by the hazardous secondary material management unit is less than ten parts per million by weight (ppmw) using one of the following two methods:
- (1) Direct measurement of the organic concentration of the material using the following procedures:

- (a) The remanufacturer or other person who stores or treats the hazardous secondary material shall take a minimum of four grab samples of material for each material stream managed in the affected unit under process conditions expected to cause the maximum material organic concentration.
- (b) For material generated on-site, the grab samples shall be collected at a point before the material is exposed to the atmosphere such as in an enclosed pipe or other closed system that is used to transfer the material after generation to the first affected distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operation. For material generated offsite, the grab samples shall be collected at the inlet to the first material management unit that receives the material provided the material has been transferred to the facility in a closed system such as a tank truck and the material is not diluted or mixed with other material.
- (c) Each sample shall be analyzed and the total organic concentration of the sample shall be computed using method 9060A of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," U.S. EPA Publication SW-846, or analyzed for the sample's individual organic constituents.
- (d) The arithmetic mean of the results of the analyses of the four samples shall apply for each material stream managed in the unit in determining the time-weighted, annual average total organic concentration of the material. The time-weighted average is to be calculated using the annual quantity of each material stream processed and the mean organic concentration of each material stream managed in the unit.
- (2) Using knowledge of the material to determine that the material's total organic concentration is less than ten ppmw. Documentation of the material determination is required. Examples of documentation that shall be used to support a determination under this provision include production process information documenting that no organic compounds are used, information that the material is generated by a process that is identical to a process at the same or another facility that has previously been demonstrated by direct measurement to generate a material stream having a total organic content less than ten ppmw, or prior speciation analysis results on the same material stream where it also can be documented that no process changes have occurred since that analysis that could affect the material total organic concentration.
- (E) The determination that distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations manage hazardous secondary materials

with time-weighted, annual average total organic concentrations less than ten ppmw shall be made as follows:

(1) By the effective date that the facility becomes subject to rules 3745-51-730 to 3745-51-735 of the Administrative Code or by the date when the material is first managed in a hazardous secondary material management unit, whichever is later; and

(2) For continuously generated material, annually; or

(3) Whenever there is a change in the material being managed or a change in the process that generates or treats the material.

(F) When a remanufacturer or other person who stores or treats the hazardous secondary material and the director do not agree on whether a distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operation manages a hazardous secondary material with organic concentrations of at least ten ppmw based on knowledge of the material, the dispute may be resolved by using direct measurement as specified at paragraph (D)(1) of this rule.

[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."]

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3745-51-735**Recordkeeping requirements - process vents.**

(A)

(1) Each remanufacturer or other person who stores or treats the hazardous secondary material subject to rules 3745-51-730 to 3745-51-735 of the Administrative Code shall comply with the recordkeeping requirements of this rule.

(2) A remanufacturer or other person who stores or treats the hazardous secondary material of more than one hazardous secondary material management unit subject to rules 3745-51-730 to 3745-51-735 of the Administrative Code may comply with the recordkeeping requirements for these hazardous secondary material management units in one recordkeeping system if the system identifies each record by each hazardous secondary material management unit.

(B) The remanufacturer or other person who stores or treats the hazardous secondary material shall keep the following records on-site:

(1) For facilities that comply with paragraph (A)(2) of rule 3745-51-733 of the Administrative Code, an implementation schedule that includes dates by which the closed-vent system and control device will be installed and in operation. The schedule also shall include a rationale of why the installation cannot be completed at an earlier date. The implementation schedule shall be kept on-site at the facility by the effective date that the facility becomes subject to rules 3745-51-730 to 3745-51-735 of the Administrative Code.

(2) Up to date documentation of compliance with the process vent standards in rule 3745-51-732 of the Administrative Code, including:

(a) Information and data identifying all affected process vents, annual throughput and operating hours of each affected unit, estimated emission rates for each affected vent and for the overall facility (i.e., the total emissions for all affected vents at the facility), and the approximate location within the facility of each affected unit (e.g., identify the hazardous secondary material management units on a facility plot plan).

(b) Information and data supporting determinations of vent emissions and emission reductions achieved by add-on control devices based on engineering calculations or source tests. For the purpose of determining compliance, determinations of vent emissions and emission reductions shall be made using operating parameter values (e.g., temperatures, flow rates, or vent stream organic compounds and concentrations) that represent the conditions that result in maximum organic emissions, such as when the hazardous secondary material management unit is operating

at the highest load or capacity level reasonably expected to occur. If the remanufacturer or other person who stores or treats the hazardous secondary material takes any action (e.g., managing a material of different composition or increasing operating hours of affected hazardous secondary material management units) that would result in an increase in total organic emissions from affected process vents at the facility, then a new determination is required.

(3) Where a remanufacturer or other person who stores or treats the hazardous secondary material chooses to use test data to determine the organic removal efficiency or total organic compound concentration achieved by the control device, a performance test plan shall be developed and include:

(a) A description of how it is determined that the planned test will be conducted when the hazardous secondary material management unit is operating at the highest load or capacity level reasonably expected to occur. This shall include the estimated or design flow rate and organic content of each vent stream and define the acceptable operating ranges of key process and control device parameters during the test program.

(b) A detailed engineering description of the closed-vent system and control device including:

(i) Manufacturer's name and model number of control device.

(ii) Type of control device.

(iii) Dimensions of the control device.

(iv) Capacity.

(v) Construction materials.

(c) A detailed description of sampling and monitoring procedures, including sampling and monitoring locations in the system, the equipment to be used, sampling and monitoring frequency, and planned analytical procedures for sample analysis.

(4) Documentation of compliance with rule 3745-51-733 of the Administrative Code shall include the following information:

(a) A list of all information references and sources used in preparing the documentation.

- (b) Records, including the dates, of each compliance test required by paragraph (K) of rule 3745-51-733 of the Administrative Code.
- (c) If engineering calculations are used, a design analysis, specifications, drawings, schematics, and piping and instrumentation diagrams based on the appropriate sections of "APTI Course 415: Control of Gaseous Emissions" or other engineering texts acceptable to the director that present basic control device design information. Documentation provided by the control device manufacturer or vendor that describes the control device design in accordance with paragraphs (B)(4)(c)(i) to (B)(4)(c)(vii) of this rule may be used to comply with this requirement. The design analysis shall address the vent stream characteristics and control device operation parameters as specified here:
- (i) For a thermal vapor incinerator, the design analysis shall consider the vent stream composition, constituent concentrations, and flow rate. The design analysis also shall establish the design minimum and average temperature in the combustion zone and the combustion zone residence time.
- (ii) For a catalytic vapor incinerator, the design analysis shall consider the vent stream composition, constituent concentrations, and flow rate. The design analysis also shall establish the design minimum and average temperatures across the catalyst bed inlet and outlet.
- (iii) For a boiler or process heater, the design analysis shall consider the vent stream composition, constituent concentrations, and flow rate. The design analysis also shall establish the design minimum and average flame zone temperatures, combustion zone residence time, and description of method and location where the vent stream is introduced into the combustion zone.
- (iv) For a flare, the design analysis shall consider the vent stream composition, constituent concentrations, and flow rate. The design analysis also shall consider the requirements specified in paragraph (D) of rule 3745-51-733 of the Administrative Code.
- (v) For a condenser, the design analysis shall consider the vent stream composition, constituent concentrations, flow rate, relative humidity, and temperature. The design analysis also shall establish the design outlet organic compound concentration level, design average temperature of the condenser exhaust vent stream, and

design average temperatures of the coolant fluid at the condenser inlet and outlet.

- (vi) For a carbon adsorption system such as a fixed-bed adsorber that regenerates the carbon bed directly on-site in the control device, the design analysis shall consider the vent stream composition, constituent concentrations, flow rate, relative humidity, and temperature. The design analysis also shall establish the design exhaust vent stream organic compound concentration level, number and capacity of carbon beds, type and working capacity of activated carbon used for carbon beds, design total steam flow over the period of each complete carbon bed regeneration cycle, duration of the carbon bed steaming and cooling and drying cycles, design carbon bed temperature after regeneration, design carbon bed regeneration time, and design service life of carbon.
- (vii) For a carbon adsorption system such as a carbon canister that does not regenerate the carbon bed directly onsite in the control device, the design analysis shall consider the vent stream composition, constituent concentrations, flow rate, relative humidity, and temperature. The design analysis also shall establish the design outlet organic concentration level, capacity of carbon bed, type and working capacity of activated carbon used for carbon bed, and design carbon replacement interval based on the total carbon working capacity of the control device and source operating schedule.
- (d) A statement signed and dated by the remanufacturer or other person who stores or treats the hazardous secondary material certifying that the operating parameters used in the design analysis reasonably represent the conditions that exist when the hazardous secondary material management unit is or would be operating at the highest load or capacity level reasonably expected to occur.
- (e) A statement signed and dated by the remanufacturer or other person who stores or treats the hazardous secondary material certifying that the control device is designed to operate at an efficiency of ninety-five per cent or greater unless the total organic concentration limit of paragraph (A) of rule 3745-51-732 of the Administrative Code is achieved at an efficiency less than ninety-five weight per cent or the total organic emission limits of paragraph (A) of rule 3745-51-732 of the Administrative Code for affected process vents at the facility can be attained by a control device involving vapor recovery at an

efficiency less than ninety-five weight per cent. A statement provided by the control device manufacturer or vendor certifying that the control equipment meets the design specifications may be used to comply with this requirement.

(f) If performance tests are used to demonstrate compliance, all test results.

(C) Design documentation and monitoring, operating, and inspection information for each closed-vent system and control device required to comply with Chapter 3745-51 of the Administrative Code shall be recorded and kept up to date at the facility. The information shall include:

- (1) Description and date of each modification that is made to the closed-vent system or control device design.
- (2) Identification of operating parameter, description of monitoring device, and diagram of monitoring sensor location or locations used to comply with paragraphs (F)(1) and (F)(2) of rule 3745-51-733 of the Administrative Code.
- (3) Monitoring, operating, and inspection information required by paragraphs (F) to (K) of rule 3745-51-733 of the Administrative Code.
- (4) Date, time, and duration of each period that occurs while the control device is operating when any monitored parameter exceeds the value established in the control device design analysis as specified here:
 - (a) For a thermal vapor incinerator designed to operate with a minimum residence time of 0.50 second at a minimum temperature of seven hundred sixty degrees Celsius, period when the combustion temperature is below seven hundred sixty degrees Celsius.
 - (b) For a thermal vapor incinerator designed to operate with an organic emission reduction efficiency of ninety-five weight per cent or greater, period when the combustion zone temperature is more than twenty-eight degrees Celsius below the design average combustion zone temperature established as a requirement of paragraph (B)(4)(c)(i) of this rule.
 - (c) For a catalytic vapor incinerator, period when:
 - (i) Temperature of the vent stream at the catalyst bed inlet is more than twenty-eight degrees Celsius below the average temperature of the inlet vent stream established as a requirement of paragraph (B)(4)(c)(ii) of this rule; or

- (ii) Temperature difference across the catalyst bed is less than eighty per cent of the design average temperature difference established as a requirement of paragraph (B)(4)(c)(ii) of this rule.
- (d) For a boiler or process heater, period when:
 - (i) Flame zone temperature is more than twenty-eight degrees Celsius below the design average flame zone temperature established as a requirement of paragraph (B)(4)(c)(iii) of this rule; or
 - (ii) Position changes where the vent stream is introduced to the combustion zone from the location established as a requirement of paragraph (B)(4)(c)(iii) of this rule.
- (e) For a flare, period when the pilot flame is not ignited.
- (f) For a condenser that complies with paragraph (F)(2)(f)(i) of rule 3745-51-733 of the Administrative Code, period when the organic compound concentration level or readings of organic compounds in the exhaust vent stream from the condenser are more than twenty per cent greater than the design outlet organic compound concentration level established as a requirement of paragraph (B)(4)(c)(v) of this rule.
- (g) For a condenser that complies with paragraph (F)(2)(f)(ii) of rule 3745-51-733 of the Administrative Code, period when:
 - (i) Temperature of the exhaust vent stream from the condenser is more than six degrees Celsius above the design average exhaust vent stream temperature established as a requirement of paragraph (B)(4)(c)(v) of this rule; or
 - (ii) Temperature of the coolant fluid exiting the condenser is more than six Celsius above the design average coolant fluid temperature at the condenser outlet established as a requirement of paragraph (B)(4)(c)(v) of this rule.
- (h) For a carbon adsorption system such as a fixed-bed carbon adsorber that regenerates the carbon bed directly on-site in the control device and complies with paragraph (F)(2)(g)(i) of rule 3745-51-733 of the Administrative Code, period when the organic compound concentration level or readings of organic compounds in the exhaust vent stream from the carbon bed are more than twenty per cent greater than the design exhaust vent stream organic compound concentration level established as a requirement of paragraph (B)(4)(c)(vi) of this rule.

- (i) For a carbon adsorption system such as a fixed-bed carbon adsorber that regenerates the carbon bed directly on-site in the control device and complies with paragraph (F)(2)(g)(ii) of rule 3745-51-733 of the Administrative Code, period when the vent stream continues to flow through the control device beyond the predetermined carbon bed regeneration time established as a requirement of paragraph (B)(4)(c)(vi) of this rule.
- (5) Explanation for each period recorded under paragraph (C)(4) of this rule of the cause for control device operating parameter exceeding the design value and the measures implemented to correct the control device operation.
- (6) For a carbon adsorption system operated subject to requirements specified in paragraph (G) or (H)(2) of rule 3745-51-733 of the Administrative Code, date when existing carbon in the control device is replaced with fresh carbon.
- (7) For a carbon adsorption system operated subject to requirements specified in paragraph (H)(1) of rule 3745-51-733 of the Administrative Code, a log that records:

 - (a) Date and time when control device is monitored for carbon breakthrough and the monitoring device reading.
 - (b) Date when existing carbon in the control device is replaced with fresh carbon.
- (8) Date of each control device startup and shutdown.
- (9) A remanufacturer or other person who stores or treats the hazardous secondary material designating any components of a closed-vent system as unsafe to monitor pursuant to paragraph (O) of rule 3745-51-733 of the Administrative Code shall record in a log that is kept at the facility the identification of closed-vent system components that are designated as unsafe to monitor in accordance with the requirements of paragraph (O) of rule 3745-51-733 of the Administrative Code, an explanation for each closed-vent system component stating why the closed-vent system component is unsafe to monitor, and the plan for monitoring each closed-vent system component.
- (10) When each leak is detected as specified in paragraph (L) of rule 3745-51-733 of the Administrative Code, the following information shall be recorded:

 - (a) The instrument identification number, the closed-vent system component identification number, and the operator name, initials, or identification number.

- (b) The date the leak was detected and the date of first attempt to repair the leak.
- (c) The date of successful repair of the leak.
- (d) Maximum instrument reading measured by method 21 of 40 CFR Part 60 appendix A after the instrument is successfully repaired or determined to be nonrepairable.
- (e) "Repair delayed" and the reason for the delay if a leak is not repaired within fifteen calendar days after discovery of the leak.

 - (i) The remanufacturer or other person who stores or treats the hazardous secondary material may develop a written procedure that identifies the conditions that justify a delay of repair. In such cases, reasons for delay of repair may be documented by citing the relevant sections of the written procedure.
 - (ii) If delay of repair was caused by depletion of stocked parts, there shall be documentation that the spare parts were sufficiently stocked on-site before depletion, and the reason for depletion.
- (D) Records of the monitoring, operating, and inspection information required by paragraphs (C)(3) to (C)(10) of this rule shall be maintained by the owner or operator for at least three years after the date of each occurrence, measurement, maintenance, corrective action, or record.
- (E) For a control device other than a thermal vapor incinerator, catalytic vapor incinerator, flare, boiler, process heater, condenser, or carbon adsorption system, the director will specify the appropriate recordkeeping requirements.
- (F) Up to date information and data used to determine whether or not a process vent is subject to the requirements in rule 3745-51-732 of the Administrative Code including supporting documentation as required by paragraph (D)(2) of rule 3745-51-734 of the Administrative Code when application of the knowledge of the nature of the hazardous secondary material stream or the process by which the hazardous secondary material was produced is used, shall be recorded in a log that is kept at the facility.

[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."]

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3745-51-750

Applicability and definitions - air emission standards for equipment leaks.

(A) Applicability. Rules 3745-51-750 to 3745-51-764 of the Administrative Code apply to equipment that contains hazardous secondary materials excluded under the remanufacturing exclusion in paragraph (A)(27) of rule 3745-51-04 of the Administrative Code, unless the equipment operations are subject to the requirements of an applicable Clean Air Act regulation codified under 40 CFR Part 60, Part 61, or Part 63.

(B) Definitions. As used in rules 3745-51-750 to 3745-51-764 of the Administrative Code, all terms have the meaning given in rule 3745-51-731 of the Administrative Code, the Resource Conservation and Recovery Act, and Chapters 3745-50 to 3745-57, 3745-65 to 3745-69, 3745-205, 3745-256, and 3745-266 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."]

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3745-51-752**Pumps in light liquid service - equipment leaks.**(A)

- (1) Each pump in light liquid service shall be monitored monthly to detect leaks by the methods specified in paragraph (B) of rule 3745-51-763 of the Administrative Code except as provided in paragraphs (D), (E), and (F) of this rule.
- (2) Each pump in light liquid service shall be checked by visual inspection each calendar week for indications of liquids dripping from the pump seal.

(B)

- (1) If an instrument reading of ten thousand parts per million (ppm) or greater is measured, a leak is detected.
- (2) If there are indications of liquids dripping from the pump seal, a leak is detected.

(C)

- (1) When a leak is detected, the leak shall be repaired as soon as practicable, but not later than fifteen calendar days after the leak is detected, except as provided in rule 3745-51-759 of the Administrative Code.
- (2) A first attempt at repair (e.g., tightening the packing gland) shall be made no later than five calendar days after each leak is detected.

(D) Each pump equipped with a dual mechanical seal system that includes a barrier fluid system is exempt from the requirements of paragraph (A) of this rule, provided the following requirements are met:

- (1) Each dual mechanical seal system shall be:
 - (a) Operated with the barrier fluid at a pressure that is at all times greater than the pump stuffing box pressure; or
 - (b) Equipped with a barrier fluid degassing reservoir that is connected by a closed-vent system to a control device that complies with the requirements of rule 3745-51-760 of the Administrative Code; or
 - (c) Equipped with a system that purges the barrier fluid into a hazardous secondary material stream with no detectable emissions to the atmosphere.

- (2) The barrier fluid system shall not be a hazardous secondary material with organic concentrations ten per cent or greater by weight.
- (3) Each barrier fluid system shall be equipped with a sensor that will detect failure of the seal system, the barrier fluid system, or both.
- (4) Each pump shall be checked by visual inspection, each calendar week, for indications of liquids dripping from the pump seals.
- (5)
- (a) Each sensor as described in paragraph (D)(3) of this rule shall be checked daily or be equipped with an audible alarm that shall be checked monthly to ensure that it the alarm is functioning properly.
- (b) The remanufacturer or other person who stores or treats the hazardous secondary material shall determine, based on design considerations and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system, or both.
- (6)
- (a) If there are indications of liquids dripping from the pump seal or the sensor indicates failure of the seal system, the barrier fluid system, or both based on the criterion determined in paragraph (D)(5)(b) of this rule, a leak is detected.
- (b) When a leak is detected, it the leak shall be repaired as soon as practicable, but not later than fifteen calendar days after the leak is detected, except as provided in rule 3745-51-759 of the Administrative Code.
- (c) A first attempt at repair (e.g., re-lapping the seal) shall be made no later than five calendar days after each leak is detected.
- (E) Any pump that is designated, as described in paragraph (G)(2) of rule 3745-51-764 of the Administrative Code, for no detectable emissions, as indicated by an instrument reading of less than five hundred parts per million (ppm) above background, is exempt from the requirements of paragraphs (A), (C), and (D) of this rule if the pump meets the following requirements:
- (1) Has no externally actuated shaft penetrating the pump housing.

(2) Operates with no detectable emissions as indicated by an instrument reading of less than five hundred ppm above background as measured by the methods specified in paragraph (C) of rule 3745-51-763 of the Administrative Code.

(3) Is tested for compliance with paragraph (E)(2) of this rule initially upon designation, annually, and at other times as requested by the director.

(F) If any pump is equipped with a closed-vent system capable of capturing and transporting any leakage from the seal to a control device that complies with the requirements of rule 3745-51-760 of the Administrative Code, the pump is exempt from the requirements of paragraphs (A) to (E) of this rule.

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3745-51-753

Compressors - equipment leaks.

(A) Each compressor shall be equipped with a seal system that includes a barrier fluid system and that prevents leakage of total organic emissions to the atmosphere, except as provided in paragraphs (H) and (I) of this rule.

(B) Each compressor seal system as required in paragraph (A) of this rule shall be:

(1) Operated with the barrier fluid at a pressure that is at all times greater than the compressor stuffing box pressure; or

(2) Equipped with a barrier fluid system that is connected by a closed-vent system to a control device that complies with the requirements of rule 3745-51-760 of the Administrative Code; or

(3) Equipped with a system that purges the barrier fluid into a hazardous secondary material stream with no detectable emissions to atmosphere.

(C) The barrier fluid shall not be a hazardous secondary material with organic concentrations ten per cent or greater by weight.

(D) Each barrier fluid system as described in paragraphs (A) to (C) of this rule shall be equipped with a sensor that will detect failure of the seal system, barrier fluid system, or both.

(E)

(1) Each sensor as required in paragraph (D) of this rule shall be checked daily or shall be equipped with an audible alarm that shall be checked monthly to ensure that the sensor is functioning properly unless the compressor is located within the boundary of an unmanned plant site, in which case the sensor shall be checked daily.

(2) The remanufacturer or other person who stores or treats the hazardous secondary material shall determine, based on design considerations and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system, or both.

(F) If the sensor indicates failure of the seal system, the barrier fluid system, or both based on the criterion determined under paragraph (E)(2) of this rule, a leak is detected.

(G)

- (1) When a leak is detected, the leak shall be repaired as soon as practicable, but not later than fifteen calendar days after the leak is detected, except as provided in rule 3745-51-759 of the Administrative Code.
 - (2) A first attempt at repair (e.g., tightening the packing gland) shall be made no later than five calendar days after each leak is detected.
- (H) A compressor is exempt from the requirements of paragraphs (A) and (B) of this rule if the compressor is equipped with a closed-vent system capable of capturing and transporting any leakage from the seal to a control device that complies with the requirements of rule 3745-51-760 of the Administrative Code, except as provided in paragraph (I) of this rule.
- (I) Any compressor that is designated, as described in paragraph (G)(2) of rule 3745-51-764 of the Administrative Code, for no detectable emissions as indicated by an instrument reading of less than five hundred ppm above background is exempt from the requirements of paragraphs (A) to (H) of this rule if the compressor:
- (1) Is determined to be operating with no detectable emissions, as indicated by an instrument reading of less than five hundred ppm above background, as measured by the method specified in paragraph (C) of rule 3745-51-763 of the Administrative Code.
 - (2) Is tested for compliance with paragraph (I)(1) of this rule initially upon designation, annually, and at other times as requested by the director.

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3745-51-754**Pressure relief devices in gas or vapor service - equipment leaks.**

(A) Except during pressure releases, each pressure relief device in gas or vapor service shall be operated with no detectable emissions, as indicated by an instrument reading of less than five hundred parts per million (ppm) above background, as measured by the method specified in paragraph (C) of rule 3745-51-763 of the Administrative Code.

(B)

(1) After each pressure release, the pressure relief device shall be returned to a condition of no detectable emissions, as indicated by an instrument reading of less than five hundred ppm above background, as soon as practicable, but no later than five calendar days after each pressure release, except as provided in rule 3745-51-759 of the Administrative Code.

(2) No later than five calendar days after the pressure release, the pressure relief device shall be monitored to confirm the condition of no detectable emissions, as indicated by an instrument reading of less than five hundred ppm above background, as measured by the method specified in paragraph (C) of rule 3745-51-763 of the Administrative Code.

(C) Any pressure relief device that is equipped with a closed-vent system capable of capturing and transporting leakage from the pressure relief device to a control device as described in rule 3745-51-760 of the Administrative Code is exempt from the requirements of paragraphs (A) and (B) of this rule.

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3745-51-755**Sampling connection systems - equipment leaks.**

- (A) Each sampling connection system shall be equipped with a closed-purge, closed-loop, or closed-vent system. This system shall collect the sample purge for return to the process or for routing to the appropriate treatment system. Gases displaced during filling of the sample container are not required to be collected or captured.
- (B) Each closed-purge, closed-loop, or closed-vent system as required in paragraph (A) of this rule shall meet one of the following requirements:
- (1) Return the purged process fluid directly to the process line;
 - (2) Collect and recycle the purged process fluid; or
 - (3) Be designed and operated to capture and transport all the purged process fluid to a material management unit that complies with the applicable requirements of rules 3745-51-784 to 3745-51-786 of the Administrative Code or a control device that complies with the requirements of rule 3745-51-760 of the Administrative Code.
- (C) In-situ sampling systems and sampling systems without purges are exempt from the requirements of paragraphs (A) and (B) of this rule.

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3745-51-756**Open-ended valves or lines - equipment leaks.**(A)

(1) Each open-ended valve or line shall be equipped with a cap, blind flange, plug, or a second valve.

(2) The cap, blind flange, plug, or second valve shall seal the open end at all times except during operations requiring hazardous secondary material stream flow through the open-ended valve or line.

(B) Each open-ended valve or line equipped with a second valve shall be operated in a manner such that the valve on the hazardous secondary material stream end is closed before the second valve is closed.

(C) When a double block and bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves but shall comply with paragraph (A) of this rule at all other times.

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3745-51-757**Valves in gas or vapor service or in light liquid service - equipment leaks.**

(A) Each valve in gas or vapor or light liquid service shall be monitored monthly to detect leaks by the methods specified in paragraph (B) of rule 3745-51-763 of the Administrative Code and shall comply with paragraphs (B) to (E) of this rule, except as provided in paragraphs (F), (G), and (H) of this rule and rules 3745-51-761 and 3745-51-762 of the Administrative Code.

(B) If an instrument reading of ten thousand parts per million (ppm) or greater is measured, a leak is detected.

(C)

(1) Any valve for which a leak is not detected for two successive months may be monitored the first month of every succeeding quarter, beginning with the next quarter, until a leak is detected.

(2) If a leak is detected, the valve shall be monitored monthly until a leak is not detected for two successive months.

(D)

(1) When a leak is detected, the leak shall be repaired as soon as practicable, but no later than fifteen calendar days after the leak is detected, except as provided in rule 3745-51-759 of the Administrative Code.

(2) A first attempt at repair shall be made no later than five calendar days after each leak is detected.

(E) First attempts at repair include, but are not limited to, the following best practices where practicable:

(1) Tightening of bonnet bolts.

(2) Replacement of bonnet bolts.

(3) Tightening of packing gland nuts.

(4) Injection of lubricant into lubricated packing.

(F) Any valve that is designated, as described in paragraph (G)(2) of rule 3745-51-764 of the Administrative Code, for no detectable emissions, as indicated by an instrument reading of less than five hundred ppm above background, is exempt from the requirements of paragraph (A) of this rule if the valve:

- (1) Has no external actuating mechanism in contact with the hazardous secondary material stream.
 - (2) Is operated with emissions less than five hundred ppm above background as determined by the method specified in paragraph (C) of rule 3745-51-763 of the Administrative Code.
 - (3) Is tested for compliance with paragraph (F)(2) of this rule initially upon designation, annually, and at other times as requested by the director.
- (G) Any valve that is designated, as described in paragraph (H)(1) of rule 3745-51-764 of the Administrative Code, as an unsafe-to-monitor valve is exempt from the requirements of paragraph (A) of this rule if:
- (1) The remanufacturer or other person who stores or treats the hazardous secondary material determines that the valve is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with paragraph (A) of this rule.
 - (2) The remanufacturer or other person who stores or treats the hazardous secondary material adheres to a written plan that requires monitoring of the valve as frequently as practicable during safe-to-monitor times.
- (H) Any valve that is designated, as described in paragraph (H)(2) of rule 3745-51-764 of the Administrative Code, as a difficult-to-monitor valve is exempt from the requirements of paragraph (A) of this rule if:
- (1) The remanufacturer or other person who stores or treats the hazardous secondary material determines that the valve cannot be monitored without elevating the monitoring personnel more than two meters above a support surface.
 - (2) The hazardous secondary material management unit within which the valve is located was in operation before the first effective date of this rule.
 - (3) The owner or operator of the valve follows a written plan that requires monitoring of the valve at least once per calendar year.

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3745-51-758

Pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and flanges and other connectors - equipment leaks.

(A) Pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and flanges and other connectors shall be monitored within five days by the method specified in paragraph (B) of rule 3745-51-763 of the Administrative Code if evidence of a potential leak is found by visual, audible, olfactory, or any other detection method.

(B) If an instrument reading of ten thousand parts per million or greater is measured, a leak is detected.

(C)

(1) When a leak is detected, the leak shall be repaired as soon as practicable, but not later than fifteen calendar days after the leak is detected, except as provided in rule 3745-51-759 of the Administrative Code.

(2) The first attempt at repair shall be made no later than five calendar days after each leak is detected.

(D) First attempts at repair include, but are not limited to, the best practices described in paragraph (E) of rule 3745-51-757 of the Administrative Code.

(E) Any connector that is inaccessible or is ceramic or ceramic-lined (e.g., porcelain, glass, or glass-lined) is exempt from the monitoring requirements of paragraph (A) of this rule and from the recordkeeping requirements of rule 3745-51-764 of the Administrative Code.

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3745-51-759

Delay of repair - equipment leaks.

- (A) Delay of repair of equipment for which leaks have been detected will be allowed if the repair is technically infeasible without a hazardous secondary material management unit shutdown. In such a case, repair of this equipment shall occur before the end of the next hazardous secondary material management unit shutdown.
- (B) Delay of repair of equipment for which leaks have been detected will be allowed for equipment that is isolated from the hazardous secondary material management unit and that does not continue to contain or contact hazardous secondary material with organic concentrations at least ten per cent by weight.
- (C) Delay of repair for valves will be allowed if:
- (1) The remanufacturer or other person who stores or treats the hazardous secondary material determines that emissions of purged material resulting from immediate repair are greater than the emissions likely to result from delay of repair.
 - (2) When repair procedures are effected, the purged material is collected and destroyed or recovered in a control device complying with rule 3745-51-760 of the Administrative Code.
- (D) Delay of repair for pumps will be allowed if:
- (1) Repair requires the use of a dual mechanical seal system that includes a barrier fluid system.
 - (2) Repair is completed as soon as practicable, but not later than six months after the leak was detected.
- (E) Delay of repair beyond a hazardous secondary material management unit shutdown will be allowed for a valve if valve assembly replacement is necessary during the hazardous secondary material management unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the next hazardous secondary material management unit shutdown will not be allowed unless the next hazardous secondary material management unit shutdown occurs sooner than six months after the first hazardous secondary material management unit shutdown.

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3745-51-760**Closed-vent systems and control devices - equipment leaks.**

(A) The remanufacturer or other person who stores or treats the hazardous secondary material in a hazardous secondary material management units using closed-vent systems and control devices subject to rules 3745-51-750 to 3745-51-764 of the Administrative Code shall comply with rule 3745-51-733 of the Administrative Code.

(B)

(1) The remanufacturer or other person who stores or treats the hazardous secondary material at an existing facility who cannot install a closed-vent system and control device to comply with rules 3745-51-750 to 3745-51-764 of the Administrative Code on the effective date that the facility becomes subject to rules 3745-51-750 to 3745-51-764 of the Administrative Code shall prepare an implementation schedule that includes dates by which the closed-vent system and control device will be installed and in operation. The controls shall be installed as soon as possible, but the implementation schedule may allow up to thirty months after the effective date that the facility becomes subject to rules 3745-51-750 to 3745-51-764 of the Administrative Code for installation and startup.

(2) Any unit that begins operation after the first effective date of this rule and is subject to rules 3745-51-750 to 3745-51-764 of the Administrative Code when operation begins, shall comply with the rules immediately (i.e., shall have control devices installed and operating on startup of the affected unit); the thirty-month implementation schedule does not apply.

(3) The remanufacturer or other person who stores or treats the hazardous secondary material at any facility in existence on the effective date of a statutory or regulatory amendment that renders the facility subject to rules 3745-51-750 to 3745-51-764 of the Administrative Code shall comply with all requirements of rules 3745-51-750 to 3745-51-764 of the Administrative Code as soon as practicable but no later than thirty months after the amendment's effective date. When control equipment required by rules 3745-51-750 to 3745-51-764 of the Administrative Code cannot be installed and begin operation by the effective date of the amendment, the facility owner or operator shall prepare an implementation schedule that includes specific calendar dates for award of contracts or issuance of purchase orders for the control equipment, initiation of on-site installation of the control equipment, completion of the control equipment installation, and performance of any testing to demonstrate that the installed equipment meets the applicable standards of rules 3745-51-750 to 3745-51-764 of the Administrative Code. The remanufacturer or other who stores or treats the hazardous secondary material shall keep a copy of the implementation schedule at the facility.

- (4) Remanufacturers or other persons who store or treat the hazardous secondary materials at facilities and units that become newly subject to the requirements of rules 3745-51-750 to 3745-51-764 of the Administrative Code after the first effective date of this rule, due to an action other than those described in paragraph (B)(3) of this rule shall comply with all applicable requirements immediately (i.e., shall have control devices installed and operating on the date the facility or unit becomes subject to rules 3745-51-750 to 3745-51-764 of the Administrative Code; the thirty-month implementation schedule does not apply).

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3745-51-761

Alternative standards for valves in gas or vapor service or in light liquid service: percentage of valves allowed to leak - equipment leaks.

(A) A remanufacturer or other person who stores or treats the hazardous secondary material subject to the requirements of rule 3745-51-757 of the Administrative Code may elect to have all valves within a hazardous secondary material management unit comply with an alternative standard that allows no greater than two per cent of the valves to leak.

(B) The following requirements shall be met if a remanufacturer or other person stores or treats the hazardous secondary material decides to comply with the alternative standard of allowing two per cent of valves to leak:

(1) A performance test as specified in paragraph (C) of this rule shall be conducted initially upon designation, annually, and at other times requested by the director; and

(2) If a valve leak is detected, the leak shall be repaired in accordance with paragraphs (D) and (E) of rule 3745-51-757 of the Administrative Code.

(C) Performance tests shall be conducted in the following manner:

(1) All valves subject to the requirements in rule 3745-51-757 of the Administrative Code within the hazardous secondary material management unit shall be monitored within one week by the methods specified in paragraph (B) of rule 3745-51-763 of the Administrative Code.

(2) If an instrument reading of ten thousand parts per million or greater is measured, a leak is detected.

(3) The leak percentage shall be determined by dividing the number of valves subject to the requirements in rule 3745-51-757 of the Administrative Code for which leaks are detected by the total number of valves subject to the requirements in rule 3745-51-757 of the Administrative Code within the hazardous secondary material management unit.

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3745-51-762

Alternative standards for valves in gas or vapor service or in light liquid service; skip period leak detection and repair - equipment leaks.

(A) A remanufacturer or other person who stores or treats the hazardous secondary material subject to the requirements of rule 3745-51-757 of the Administrative Code may elect for all valves within a hazardous secondary material management unit to comply with one of the alternative work practices specified in paragraphs (B)(2) and (B)(3) of this rule.

(B)

(1) A remanufacturer or other person who stores or treats the hazardous secondary material shall comply with the requirements for valves, as described in rule 3745-51-757 of the Administrative Code, except as described in paragraphs (B)(2) and (B)(3) of this rule.

(2) After two consecutive quarterly leak detection periods with the percentage of valves leaking equal to or less than two per cent, a remanufacturer or other person who stores or treats the hazardous secondary material may begin to skip one of the quarterly leak detection periods (i.e., monitor for leaks once every six months) for the valves subject to the requirements in rule 3745-51-757 of the Administrative Code.

(3) After five consecutive quarterly leak detection periods with the percentage of valves leaking equal to or less than two per cent, a remanufacturer or other person who stores or treats the hazardous secondary material may begin to skip three of the quarterly leak detection periods (i.e., monitor for leaks once every year) for the valves subject to the requirements in rule 3745-51-757 of the Administrative Code.

(4) If the percentage of valves leaking is greater than two per cent, the remanufacturer or other person who stores or treats the hazardous secondary material shall monitor monthly in compliance with the requirements in rule 3745-51-757 of the Administrative Code, but may again elect to use this rule after meeting the requirements of paragraph (C)(1) of rule 3745-51-757 of the Administrative Code.

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3745-51-763**Test methods and procedures - equipment leaks.**

- (A) Each remanufacturer or other person who stores or treats the hazardous secondary material subject to rules 3745-51-750 to 3745-51-764 of the Administrative Code shall comply with the test methods and procedures requirements provided in this rule.
- (B) Leak detection monitoring, as required in rules 3745-51-752 to 3745-51-762 of the Administrative Code, shall comply with the following requirements:
- (1) Monitoring shall comply with reference method 21 in 40 CFR Part 60.
 - (2) The detection instrument shall meet the performance criteria of reference method 21.
 - (3) The instrument shall be calibrated before use on each day of instrument's use by the procedures specified in reference method 21.
 - (4) Calibration gases shall be:
 - (a) Zero air [less than ten parts per million (ppm) of hydrocarbon in air].
 - (b) A mixture of methane or n-hexane and air at a concentration of approximately, but less than, ten thousand ppm methane or n-hexane.
 - (5) The instrument probe shall be traversed around all potential leak interfaces as close to the interface as possible as described in reference method 21.
- (C) When equipment is tested for compliance with no detectable emissions, as required in paragraph (E) of rule 3745-51-752, paragraph (I) of rule 3745-51-753, rule 3745-51-754, and paragraph (F) of rule 3745-51-757 of the Administrative Code, the test shall comply with the following requirements:
- (1) The requirements of paragraphs (B)(1) to (B)(4) of this rule shall apply.
 - (2) The background level shall be determined as provided in reference method 21.
 - (3) The instrument probe shall be traversed around all potential leak interfaces as close to the interface as possible as described in reference method 21.
 - (4) The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared with five hundred ppm for determining compliance.
- (D) A remanufacturer or other person who stores or treats the hazardous secondary material shall determine, for each piece of equipment, whether the equipment contains or

contacts a hazardous secondary material with organic concentration that equals or exceeds ten per cent by weight using the following:

- (1) Methods described in ASTM method D2267-88, method E169-87, method E168-88, and method E260-85; or
- (2) Method 9060A of "Test Methods for Evaluating Solid Waste," U.S. EPA publication SW-846, for computing total organic concentration of the sample, or analyzed for the sample's individual organic constituents; or
- (3) Application of the knowledge of the nature of the hazardous secondary material stream or the process by which the hazardous secondary material was produced. Documentation of a material determination by knowledge is required. Examples of documentation that shall be used to support a determination under this provision include production process information documenting that no organic compounds are used, information that the material is generated by a process that is identical to a process at the same or another facility that has previously been demonstrated by direct measurement to have a total organic content less than ten per cent, or prior speciation analysis results on the same material stream where it also can be documented that no process changes have occurred since that analysis that could affect the material total organic concentration.

(E) If a remanufacturer or other person who stores or treats the hazardous secondary material determines that a piece of equipment contains or contacts a hazardous secondary material with organic concentrations at least ten per cent by weight, the determination can be revised only after following the procedures in paragraph (D)(1) or (D)(2) of this rule.

(F) When a remanufacturer or other person who stores or treats the hazardous secondary material and the director do not agree on whether a piece of equipment contains or contacts a hazardous secondary material with organic concentrations at least ten per cent by weight, the procedures in paragraph (D)(1) or (D)(2) of this rule can be used to resolve the dispute.

(G) Samples used in determining the per cent organic content shall be representative of the highest total organic content hazardous secondary material that is expected to be contained in or contact the equipment.

(H) To determine if pumps or valves are in light liquid service, the vapor pressures of constituents may be obtained from standard reference texts or may be determined by ASTM method D2879-86.

(I) Performance tests to determine if a control device achieves ninety-five weight per cent organic emission reduction shall comply with the procedures of paragraphs (C)(1) to (C)(4) of rule 3745-51-734 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."]

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3745-51-764**Recordkeeping requirements - equipment leaks.**

(A)

(1) Each remanufacturer or other person who stores or treats the hazardous secondary material subject to rules 3745-51-750 to 3745-51-764 of the Administrative Code shall comply with the recordkeeping requirements of this rule.

(2) A remanufacturer or other person who stores or treats the hazardous secondary material in more than one hazardous secondary material management unit subject to rules 3745-51-750 to 3745-51-764 of the Administrative Code may comply with the recordkeeping requirements for these hazardous secondary material management units in one recordkeeping system if the system identifies each record by each hazardous secondary material management unit.

(B) Remanufacturer's and other persons who store or treat the hazardous secondary material shall record and keep the following information at the facility:

(1) For each piece of equipment to which rules 3745-51-750 to 3745-51-764 of the Administrative Code applies.

(a) Equipment identification number and hazardous secondary material management unit identification.

(b) Approximate locations within the facility (e.g., identify the hazardous secondary material management unit on a facility plot plan).

(c) Type of equipment (e.g., a pump or pipeline valve).

(d) Per cent by weight total organics in the hazardous secondary material stream at the equipment.

(e) Hazardous secondary material state at the equipment (e.g., gas or vapor or liquid).

(f) Method of compliance with the standard (e.g., "monthly leak detection and repair" or "equipped with dual mechanical seals").

(2) For facilities that comply with paragraph (A)(2) of rule 3745-51-733 of the Administrative Code, an implementation schedule as specified in paragraph (A)(2) of rule 3745-51-733 of the Administrative Code.

(3) Where a remanufacturer or other person who stores or treats the hazardous secondary material chooses to use test data to demonstrate the organic removal efficiency or total organic compound concentration achieved by the control

device, a performance test plan as specified in paragraph (B)(3) of rule 3745-51-735 of the Administrative Code.

- (4) Documentation of compliance with rule 3745-51-760 of the Administrative Code, including the detailed design documentation or performance test results specified in paragraph (B)(4) of rule 3745-51-735 of the Administrative Code.
- (C) When each leak is detected as specified in rules 3745-51-752, 3745-51-753, 3745-51-757, and 3745-51-758 of the Administrative Code, the following requirements apply:
- (1) A weatherproof and readily visible identification, marked with the equipment identification number, the date evidence of a potential leak was found in accordance with paragraph (A) of rule 3745-51-758 of the Administrative Code, and the date the leak was detected, shall be attached to the leaking equipment.
 - (2) The identification on equipment, except on a valve, may be removed after the equipment has been repaired.
 - (3) The identification on a valve may be removed after the equipment has been monitored for two successive months as specified in paragraph (C) of rule 3745-51-757 of the Administrative Code and no leak has been detected during those two months.
- (D) When each leak is detected as specified in rules 3745-51-752, 3745-51-753, 3745-51-757, and 3745-51-758 of the Administrative Code, the following information shall be recorded in an inspection log and shall be kept at the facility:
- (1) The instrument and operator identification numbers and the equipment identification number.
 - (2) The date evidence of a potential leak was found in accordance with paragraph (A) of rule 3745-51-758 of the Administrative Code.
 - (3) The date the leak was detected and the dates of each attempt to repair the leak.
 - (4) Repair methods applied in each attempt to repair the leak.
 - (5) "Above ten thousand" if the maximum instrument reading measured by the methods specified in paragraph (B) of rule 3745-51-763 of the Administrative Code after each repair attempt is equal to or greater than ten thousand parts per million (ppm).

- (6) "Repair delayed" and the reason for the delay if a leak is not repaired within fifteen calendar days after discovery of the leak.
 - (7) Documentation supporting the delay of repair of a valve in compliance with paragraph (C) of rule 3745-51-759 of the Administrative Code.
 - (8) The signature of the remanufacturer or other person who stores or treats the hazardous secondary material (or designate) whose decision it was that repair could not be completed without a hazardous secondary material management unit shutdown.
 - (9) The expected date of successful repair of the leak if a leak is not repaired within fifteen calendar days.
 - (10) The date of successful repair of the leak.
- (E) Design documentation and monitoring, operating, and inspection information for each closed-vent system and control device required to comply with rule 3745-51-760 of the Administrative Code shall be recorded and kept up to date at the facility as specified in paragraph (C) of rule 3745-51-735 of the Administrative Code. Design documentation is specified in paragraphs (C)(1) and (C)(2) of rule 3745-51-735 of the Administrative Code and monitoring, operating, and inspection information in paragraphs (C)(3) to (C)(8) of rule 3745-51-735 of the Administrative Code.
- (F) For a control device other than a thermal vapor incinerator, catalytic vapor incinerator, flare, boiler, process heater, condenser, or carbon adsorption system, the director will specify the appropriate recordkeeping requirements.
- (G) The following information pertaining to all equipment subject to the requirements in rules 3745-51-752 to 3745-51-760 of the Administrative Code shall be recorded in a log that is kept at the facility:
- (1) A list of identification numbers for equipment (except welded fittings) subject to the requirements of rules 3745-51-750 to 3745-51-764 of the Administrative Code.
 - (2)
 - (a) A list of identification numbers for equipment that the remanufacturer or other person who stores or treats the hazardous secondary material elects to designate for no detectable emissions, as indicated by an instrument reading of less than five hundred ppm above background, under paragraph (E) of rule 3745-51-752, paragraph (I) of rule 3745-51-753, and paragraph (F) of rule 3745-51-757 of the Administrative Code.

- (b) The designation of this equipment as subject to the requirements of paragraph (E) of rule 3745-51-752, paragraph (I) of rule 3745-51-753, and paragraph (F) of rule 3745-51-757 of the Administrative Code shall be signed by the remanufacturer or other person who stores or treats the hazardous secondary material.
- (3) A list of equipment identification numbers for pressure relief devices required to comply with paragraph (A) of rule 3745-51-754 of the Administrative Code.
- (4)
 - (a) The dates of each compliance test required in paragraph (E) of rule 3745-51-752, paragraph (I) of rule 3745-51-753, rule 3745-51-754, and paragraph (F) of rule 3745-51-757 of the Administrative Code.
 - (b) The background level measured during each compliance test.
 - (c) The maximum instrument reading measured at the equipment during each compliance test.
- (5) A list of identification numbers for equipment in vacuum service.
- (6) Identification, either by list or location (area or group) of equipment that contains or contacts hazardous secondary material with an organic concentration of at least ten per cent by weight for less than three hundred hours per calendar year.
- (H) The following information pertaining to all valves subject to the requirements of paragraphs (G) and (H) of rule 3745-51-757 of the Administrative Code shall be recorded in a log that is kept at the facility:
 - (1) A list of identification numbers for valves that are designated as unsafe to monitor, an explanation for each valve stating why the valve is unsafe to monitor, and the plan for monitoring each valve.
 - (2) A list of identification numbers for valves that are designated as difficult to monitor, an explanation for each valve stating why the valve is difficult to monitor, and the planned schedule for monitoring each valve.
- (I) The following information shall be recorded in a log that is kept at the facility for valves complying with rule 3745-51-762 of the Administrative Code:
 - (1) A schedule of monitoring.
 - (2) The per cent of valves found leaking during each monitoring period.

(J) The following information shall be recorded in a log that is kept at in the facility:

- (1) Criteria required in paragraph (D)(5)(b) of rule 3745-51-752 and paragraph (E) (2) of rule 3745-51-753 of the Administrative Code and an explanation of the design criteria.
- (2) Any changes to these criteria and the reasons for the changes.

(K) The following information shall be recorded in a log that is kept at the facility for use in determining exemptions as provided in rule 3745-51-750 of the Administrative Code and other specific rules:

- (1) An analysis determining the design capacity of the hazardous secondary material management unit.
- (2) A statement listing the hazardous secondary material influent to and effluent from each hazardous secondary material management unit subject to the requirements in rules 3745-51-752 to 3745-51-760 of the Administrative Code and an analysis determining whether these hazardous secondary materials are heavy liquids.
- (3) An up to date analysis and the supporting information and data used to determine whether or not equipment is subject to the requirements in rules 3745-51-752 to 3745-51-760 of the Administrative Code. The record shall include supporting documentation as required by paragraph (D)(3) of rule 3745-51-763 of the Administrative Code when application of the knowledge of the nature of the hazardous secondary material stream or the process by which the hazardous secondary material stream was produced is used. If the remanufacturer or other person who stores or treats the hazardous secondary material takes any action (e.g., changing the process that produced the material) that could result in an increase in the total organic content of the material contained in or contacted by equipment determined not to be subject to the requirements in rules 3745-51-752 to 3745-51-760 of the Administrative Code, then a new determination is required.

(L) Records of the equipment leak information required by paragraph (D) of this rule and the operating information required by paragraph (E) of this rule need be kept only three years.

(M) The remanufacturer or other person who stores or treats the hazardous secondary material at a facility with equipment that is subject to rules 3745-51-750 to 3745-51-764 of the Administrative Code and to regulations at 40 CFR Part 60, Part 61, or Part 63 may elect to determine compliance with rules 3745-51-750 to

3745-51-764 of the Administrative Code either by documentation pursuant to rule 3745-51-764 of the Administrative Code, or by documentation of compliance with 40 CFR Part 60, Part 61, or Part 63 pursuant to the relevant provisions of 40 Part 60, Part 61, or Part 63. The documentation of compliance under 40 CFR Part 60, Part 61, or Part 63 shall be kept with or made readily available at the facility.

[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."]

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3745-51-780

Applicability - air emission standards for tanks and containers.

(A) Rules 3745-51-780 to 3745-51-789 of the Administrative Code apply to tanks and containers that contain hazardous secondary materials excluded under the remanufacturing exclusion in paragraph (A)(27) of rule 3745-51-04 of the Administrative Code, unless the tanks and containers are equipped with and operating air emission controls in accordance with the requirements of an applicable Clean Air Act regulations codified under 40 CFR Part 60, Part 61, or Part 63.

(B) [Reserved.]

[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."]

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3745-51-781**Definitions - air emission standards for tanks and containers.**

As used in rules 3745-51-780 to 3745-51-789 of the Administrative Code, all terms not defined herein have the meaning given in the Resource Conservation and Recovery Act and Chapters 3745-50 to 3745-57, 3745-65 to 3745-69, 3745-205, 3745-256, and 3745-266 of the Administrative Code.

(A) "Average volatile organic (VO) concentration" or "average VO concentration" means the mass-weighted average volatile organic concentration of a hazardous secondary material as determined in accordance with the requirements of rule 3745-51-784 of the Administrative Code.

(B) [Reserved.]

(C)

(1) "Closure device" means a cap, hatch, lid, plug, seal, valve, or other type of fitting that blocks an opening in a cover such that when the device is secured in the closed position the closure device prevents or reduces air pollutant emissions to the atmosphere. Closure devices include devices that are detachable from the cover (e.g., a sampling port cap), manually operated (e.g., a hinged access lid or hatch), or automatically operated (e.g., a spring-loaded pressure relief valve).

(2) "Continuous seal" means a seal that forms a continuous closure that completely covers the space between the edge of the floating roof and the wall of a tank. A continuous seal may be a vapor-mounted seal, liquid-mounted seal, or metallic shoe seal. A continuous seal may be constructed of fastened segments so as to form a continuous seal.

(3) "Cover" means a device that provides a continuous barrier over the hazardous secondary material managed in a unit to prevent or reduce air pollutant emissions to the atmosphere. A cover may have openings (such as access hatches, sampling ports, gauge wells) that are necessary for operation, inspection, maintenance, and repair of the unit on which the cover is used. A cover may be a separate piece of equipment which can be detached and removed from the unit or a cover may be formed by structural features permanently integrated into the design of the unit.

(D) [Reserved.]

(E)

(1) "Empty hazardous secondary material container" means:

- (a) A container from which all hazardous secondary materials have been removed that can be removed using the practices commonly employed to remove materials from that type of container, e.g., pouring, pumping, and aspirating, and no more than 2.5 centimeters (one inch) of residue remain on the bottom of the container or inner liner;
 - (b) A container that is less than or equal to one hundred-nineteen gallons in size and no more than three per cent by weight of the total capacity of the container remains in the container or inner liner; or
 - (c) A container that is greater than one hundred-nineteen gallons in size and no more than 0.3 per cent by weight of the total capacity of the container remains in the container or inner liner.
- (2) "Enclosure" means a structure that surrounds a tank or container, captures organic vapors emitted from the tank or container, and vents the captured vapors through a closed-vent system to a control device.
- (3) "External floating roof" means a pontoon-type or double-deck type cover that rests on the surface of the material managed in a tank with no fixed roof.
- (F)
- (1) "Fixed roof" means a cover that is mounted on a unit in a stationary position and does not move with fluctuations in the level of the material managed in the unit.
- (2) "Floating membrane" cover means a cover consisting of a synthetic flexible membrane material that rests upon and is supported by the hazardous secondary material being managed in a surface impoundment.
- (3) "Floating roof" means a cover consisting of a double deck, pontoon single deck, or internal floating cover which rests upon and is supported by the material being contained, and is equipped with a continuous seal.
- (G) [Reserved.]
- (H) "Hard-piping" means pipe or tubing that is manufactured and properly installed in accordance with relevant standards and good engineering practices.
- (I)
- (1) "In light material service" means the container is used to manage a material for which vapor pressure of one or more of the organic constituents in the material is greater than 0.3 kilopascals (kPa) at twenty degrees Celsius, and the total

concentration of the pure organic constituents having a vapor pressure greater than 0.3 kPa at twenty degrees Celsius is equal to or greater than twenty per cent by weight.

- (2) "Internal floating roof" means a cover that rests or floats on the material surface (but not necessarily in complete contact with the material surface) inside a tank that has a fixed roof.

(J) [Reserved.]

(K) [Reserved.]

- (L) "Liquid-mounted seal" means a foam or liquid-filled primary seal mounted in contact with the hazardous secondary material between the tank wall and the floating roof continuously around the circumference of the tank.

(M)

- (1) "Malfunction" means any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.
- (2) "Material determination" means performing all applicable procedures in accordance with the requirements of rule 3745-51-784 of the Administrative Code to determine whether a hazardous secondary material meets standards specified in rules 3745-51-780 to 3745-51-789 of the Administrative Code. Examples of a material determination include performing the procedures in accordance with the requirements of rule 3745-51-784 of the Administrative Code to determine the average VO concentration of a hazardous secondary material at the point of material origination; the average VO concentration of a hazardous secondary material at the point of material treatment and comparing the results to the exit concentration limit specified for the process used to treat the hazardous secondary material; the organic reduction efficiency and the organic biodegradation efficiency for a biological process used to treat a hazardous secondary material and comparing the results to the applicable standards; or the maximum volatile organic vapor pressure for a hazardous secondary material in a tank and comparing the results to the applicable standards.
- (3) "Maximum organic vapor pressure" means the sum of the individual organic constituent partial pressures exerted by the material contained in a tank, at the maximum vapor pressure-causing conditions (i.e., temperature, agitation, pH

effects of combining materials, etc.) reasonably expected to occur in the tank. For the purpose of rules 3745-51-780 to 3745-51-789 of the Administrative Code, maximum organic vapor pressure is determined using the procedures specified in paragraph (C) of rule 3745-51-784 of the Administrative Code.

(4) "Metallic shoe seal" means a continuous seal that is constructed of metal sheets which are held vertically against the wall of the tank by springs, weighted levers, or other mechanisms and is connected to the floating roof by braces or other means. A flexible coated fabric (envelope) spans the annular space between the metal sheet and the floating roof.

(N) "No detectable organic emissions" means no escape of organics to the atmosphere as determined using the procedure specified in paragraph (D) of rule 3745-51-784 of the Administrative Code.

(O) [Reserved.]

(P) "Point of material origination" means as follows:

(1) When the remanufacturer or other person who stores or treats the hazardous secondary material is the generator of the hazardous secondary material, the point of material origination means the point where a material produced by a system, process, or material management unit is determined to be a hazardous secondary material excluded under paragraph (A)(27) of rule 3745-51-04 of the Administrative Code.

[Comment: In this case, this term is being used in a manner similar to the use of the term "point of generation" in air standards established under authority of the Clean Air Act in 40 CFR Part 60, Part 61, and Part 63.]

(2) When the remanufacturer or other person who stores or treats the hazardous secondary material is not the generator of the hazardous secondary material, point of material origination means the point where the remanufacturer or other person who stores or treats the hazardous secondary material accepts delivery or takes possession of the hazardous secondary material.

(Q) [Reserved.]

(R) [Reserved.]

(S)

(1) "Safety device" means a closure device such as a pressure relief valve, frangible disc, fusible plug, or any other type of device which functions exclusively

to prevent physical damage or permanent deformation to a unit or the unit's air emission control equipment by venting gases or vapors directly to the atmosphere during unsafe conditions resulting from an unplanned, accidental, or emergency event. For the purpose of rules 3745-51-780 to 3745-51-789 of the Administrative Code, a safety device is not used for routine venting of gases or vapors from the vapor headspace underneath a cover such as during filling of the unit or to adjust the pressure in this vapor headspace in response to normal daily diurnal ambient temperature fluctuations. A safety device is designed to remain in a closed position during normal operations and open only when the internal pressure, or another relevant parameter, exceeds the device threshold setting applicable to the air emission control equipment as determined by the remanufacturer or other person who stores or treats the hazardous secondary material based on manufacturer recommendations, applicable regulations, fire protection and prevention codes, standard engineering codes and practices, or other requirements for the safe handling of flammable, ignitable, explosive, reactive, or hazardous materials.

(2) "Single-seal system" means a floating roof having one continuous seal. This seal may be vapor-mounted, liquid-mounted, or a metallic shoe seal.

(T) [Reserved.]

(U) [Reserved.]

(V)

(1) "Vapor-mounted seal" means a continuous seal that is mounted such that there is a vapor space between the hazardous secondary material in the unit and the bottom of the seal.

(2) "Volatile organic concentration" or "VO concentration" means the fraction by weight of the volatile organic compounds contained in a hazardous secondary material expressed in terms of parts per million by weight (ppmw) as determined by direct measurement or by knowledge of the material in accordance with the requirements of rule 3745-51-784 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."]

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3745-51-782**General standards - tanks and containers.**

- (A) This rule applies to the management of hazardous secondary material in tanks and containers subject to rules 3745-51-780 to 3745-51-789 of the Administrative Code.
- (B) The remanufacturer or other person who stores or treats the hazardous secondary material shall control air pollutant emissions from each hazardous secondary material management unit in accordance with standards specified in rules 3745-51-784 to 3745-51-787 of the Administrative Code, as applicable to the hazardous secondary material management unit, except as provided for in paragraph (C) of this rule.
- (C) A tank or container is exempt from standards specified in rules 3745-51-784 to 3745-51-787 of the Administrative Code, as applicable, provided that the hazardous secondary material management unit is a tank or container for which all hazardous secondary material entering the unit has an average volatile organic (VO) concentration at the point of material origination of less than five hundred ppmw. The average VO concentration shall be determined using the procedures specified in paragraph (A) of rule 3745-51-783 of the Administrative Code. The remanufacturer or other person who stores or treats the hazardous secondary material shall review and update, as necessary, this determination at least once every twelve months after the date of the initial determination for the hazardous secondary material streams entering the unit.

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3745-51-783**Material determination procedures - tanks and containers.**

(A) Material determination procedure to determine average volatile organic (VO) concentration of a hazardous secondary material at the point of material origination.

(1) Determining average VO concentration at the point of material origination. A remanufacturer or other person who stores or treats the hazardous secondary material shall determine the average VO concentration at the point of material origination for each hazardous secondary material placed in a hazardous secondary material management unit exempted under paragraph (C)(1) of rule 3745-51-782 of the Administrative Code from using air emission controls in accordance with standards specified in rules 3745-51-784 to 3745-51-787 of the Administrative Code, as applicable to the hazardous secondary material management unit.

(a) An initial determination of the average VO concentration of the material stream shall be made before the first time any portion of the material in the hazardous secondary material stream is placed in a hazardous secondary material management unit exempted under paragraph (C)(1) of rule 3745-51-782 of the Administrative Code from using air emission controls, and thereafter an initial determination of the average VO concentration of the material stream shall be made for each averaging period that a hazardous secondary material is managed in the unit; and

(b) Perform a new material determination whenever changes to the source generating the material stream are reasonably likely to cause the average VO concentration of the hazardous secondary material to increase to a level that is equal to or greater than the applicable VO concentration limits specified in rule 3745-51-782 of the Administrative Code.

(2) Determination of average VO concentration using direct measurement or knowledge. For a material determination that is required by paragraph (A)(1) of this rule, the average VO concentration of a hazardous secondary material at the point of material origination shall be determined using either direct measurement as specified in paragraph (A)(3) of this rule or by knowledge as specified in paragraph (A)(4) of this rule.

(3) Direct measurement to determine average VO concentration of a hazardous secondary material at the point of material origination.

(a) Identification. The remanufacturer or other person who stores or treats the hazardous secondary material shall identify and record in a log that is kept at the facility the point of material origination for the hazardous secondary material.

- (b) Sampling. Samples of the hazardous secondary material stream shall be collected at the point of material origination in a manner such that volatilization of organics contained in the material and in the subsequent sample is minimized and an adequately representative sample is collected and maintained for analysis by the selected method.
- (i) The averaging period to be used for determining the average VO concentration for the hazardous secondary material stream on a mass-weighted average basis shall be designated and recorded. The averaging period can represent any time interval that the remanufacturer or other person who stores or treats the hazardous secondary material determines is appropriate for the hazardous secondary material stream but shall not exceed one year.
- (ii) A sufficient number of samples, but no less than four samples, shall be collected and analyzed for a hazardous secondary material determination. All of the samples for a given material determination shall be collected within a one-hour period. The average of the four or more sample results constitutes a material determination for the material stream. One or more material determinations may be required to represent the complete range of material compositions and quantities that occur during the entire averaging period due to normal variations in the operating conditions for the source or process generating the hazardous secondary material stream. Examples of such normal variations are seasonal variations in material quantity or fluctuations in ambient temperature.
- (iii) All samples shall be collected and handled in accordance with written procedures prepared by the remanufacturer or other person who stores or treats the hazardous secondary material and documented in a site sampling plan. This site sampling plan shall describe the procedure by which representative samples of the hazardous secondary material stream are collected such that a minimum loss of organics occurs throughout the sample collection and handling process, and by which sample integrity is maintained. A copy of the written sampling plan shall be maintained at the facility. An example of acceptable sample collection and handling procedures for a total volatile organic constituent concentration may be found in method 25D in 40 CFR Part 60 appendix A.
- (iv) Sufficient information, as specified in the "site sampling plan" required under paragraph (A)(3)(b)(iii) of this rule, shall be prepared and recorded to document the material quantity

represented by the samples and, as applicable, the operating conditions for the source or process generating the hazardous secondary material represented by the samples.

(c) Analysis. Each collected sample shall be prepared and analyzed in accordance with method 25D in 40 CFR Part 60 appendix A for the total concentration of volatile organic constituents, or using one or more methods when the individual organic compound concentrations are identified and summed and the summed material concentration accounts for and reflects all organic compounds in the material with Henry's law constant values at least 0.1 mole-fraction-in-the-gas-phase/mole-fraction-in-the-liquid-phase (0.1 Y/X) [which can also be expressed as 1.8×10^{-6} atmospheres/gram-mole/m³] at twenty-five degrees Celsius. At the discretion of the remanufacturer or other person who stores or treats the hazardous secondary material, the test data obtained may be adjusted by any appropriate method to discount any contribution to the total volatile organic concentration that is a result of including a compound with a Henry's law constant value of less than 0.1 Y/X at twenty-five degrees Celsius. To adjust these data, the measured concentration of each individual chemical constituent contained in the material is multiplied by the appropriate constituent-specific adjustment factor (f_{m25D}). If the remanufacturer or other person who stores or treats the hazardous secondary material elects to adjust the test data, the adjustment shall be made to all individual chemical constituents with a Henry's law constant value greater than or equal to 0.1 Y/X at twenty-five degrees Celsius contained in the material. Constituent-specific adjustment factors (f_{m25D}) can be obtained by contacting the "Waste and Chemical Processes Group, Office of Air Quality Planning and Standards, Research Triangle Park, NC" 27711. Other test methods may be used if those test methods meet the requirements in paragraph (A)(3)(c)(i) or (A)(3)(c)(ii) of this rule and provided the requirement to reflect all organic compounds in the material with Henry's law constant values greater than or equal to 0.1 Y/X [which can also be expressed as 1.8×10^{-6} atmospheres/gram-mole/m³] at twenty-five degrees Celsius, is met.

(i) Any U.S. EPA standard method that has been validated in accordance with "Alternative Validation Procedure for EPA Waste and Wastewater Methods," 40 CFR Part 63 appendix D.

(ii) Any other analysis method that has been validated in accordance with the procedures specified in section 5.1 or section 5.3, and the corresponding calculations in section 6.1 or section 6.3, of method

301 in 40 CFR Part 63 appendix A. The data are acceptable if the data meet the criteria specified in section 6.1.5 or section 6.3.3 of method 301. If correction is required under section 6.3.3 of method 301, the data are acceptable if the correction factor is within the range 0.7 to 1.30. Other sections of method 301 are not required.

(d) Calculations.

- (i) The average VO concentration (C) on a mass-weighted basis shall be calculated by using the results for all material determinations conducted in accordance with paragraphs (A)(3)(b) to (A)(3)(c) of this rule and the following equation:

$$\bar{C} = \frac{1}{Q_T} \times \sum_{i=1}^n (Q_i \times C_i)$$

Where:

C = Average VO concentration of the hazardous secondary material at the point of material origination on a mass-weighted basis, parts per million by weight (ppmw).

i = Individual material determination "I" of the hazardous secondary material.

n = Total number of material determinations of the hazardous secondary material conducted for the averaging period (not to exceed one year).

Q_i = Mass quantity of hazardous secondary material stream represented by C_i, kilograms per hour (kg/hr).

Q_T = Total mass quantity of hazardous secondary material during the averaging period, kg/hr.

C_i = Measured VO concentration of material determination

"I" as determined in accordance with the requirements of paragraph (A)(3)(c) of this rule [i.e. the average of the four or more samples

specified in paragraph (A)(3)(b)(ii) of this rule], parts per million by weight (ppmw).

(ii) For the purpose of determining C_i for individual material samples analyzed in accordance with paragraph (A)(3)(c) of this rule, the remanufacturer or other person who stores or treats the hazardous secondary material shall account for VO concentrations determined to be below the limit of detection of the analytical method by using the following VO concentration:

(a) If method 25D in 40 CFR Part 60 appendix A is used for the analysis, one-half the blank value determined in the method at section 4.4 of method 25D in 40 CFR Part 60 appendix A.

(b) If any other analytical method is used, one-half the sum of the limits of detection established for each organic constituent in the material that has a Henry's law constant values at least 0.1 mole-fraction-in-the-gas-phase/mole-fraction-in-the-liquid-phase (0.1 Y/X) [which can also be expressed as 1.8×10^{-6} atmospheres/gram-mole/ m^3] at twenty-five degrees Celsius.

(4) Use of knowledge by the remanufacturer or other person who stores or treats the hazardous secondary material to determine average VO concentration of a hazardous secondary material at the point of material origination.

(a) Documentation shall be prepared that presents the information used as the basis for the knowledge by the remanufacturer or other person who stores or treats the hazardous secondary material of the hazardous secondary material stream's average VO concentration. Examples of information that may be used as the basis for knowledge include material balances for the source or process generating the hazardous secondary material stream, constituent-specific chemical test data for the hazardous secondary material stream from previous testing that are still applicable to the current material stream, previous test data for other locations managing the same type of material stream, or other knowledge based on information included in shipping papers or material certification notices.

(b) If test data are used as the basis for knowledge, then the remanufacturer or other person who stores or treats the hazardous secondary material shall document the test method, sampling protocol, and the means by which sampling variability and analytical variability are accounted for in the determination of the average VO concentration. For example,

a remanufacturer or other person who stores or treats the hazardous secondary material may use organic concentration test data for the hazardous secondary material stream that are validated in accordance with method 301 in 40 CFR Part 63 appendix A as the basis for knowledge of the material.

(c) A remanufacturer or other person who stores or treats the hazardous secondary material using chemical constituent-specific concentration test data as the basis for knowledge of the hazardous secondary material may adjust the test data to the corresponding average VO concentration value which would have been obtained had the material samples been analyzed using method 25D in 40 CFR Part 60 appendix A. To adjust these data, the measured concentration for each individual chemical constituent contained in the material is multiplied by the appropriate constituent-specific adjustment factor (f_{m25D}).

(d) In the event that the director and the remanufacturer or other person who stores or treats the hazardous secondary material disagree on a determination of the average VO concentration for a hazardous secondary material stream using knowledge, then the results from a determination of average VO concentration using direct measurement as specified in paragraph (A)(3) of this rule shall be used to establish compliance with the applicable requirements of rules 3745-51-780 to 3745-51-789 of the Administrative Code. The director may perform or request that the remanufacturer or other person who stores or treats the hazardous secondary material perform this determination using direct measurement. The remanufacturer or other person who stores or treats the hazardous secondary material may choose one or more appropriate methods to analyze each collected sample in accordance with the requirements of paragraph (A)(3)(c) of this rule.

(B) [Reserved.]

(C) Procedure to determine the maximum organic vapor pressure of a hazardous secondary material in a tank.

(1) A remanufacturer or other person who stores or treats the hazardous secondary material shall determine the maximum organic vapor pressure for each hazardous secondary material placed in a tank using "Tank Level 1" controls in accordance with standards specified in paragraph (C) of rule 3745-51-784 of the Administrative Code.

- (2) A remanufacturer or other person who stores or treats the hazardous secondary material shall use either direct measurement as specified in paragraph (C)(3) of this rule or knowledge of the waste as specified by paragraph (C)(4) of this rule to determine the maximum organic vapor pressure which is representative of the hazardous secondary material composition stored or treated in the tank.
- (3) Direct measurement to determine the maximum organic vapor pressure of a hazardous secondary material.
- (a) Sampling. A sufficient number of samples shall be collected to be representative of the hazardous secondary material contained in the tank. All samples shall be collected and handled in accordance with written procedures prepared by the remanufacturer or other person who stores or treats the hazardous secondary material and documented in a site sampling plan. This site sampling plan shall describe the procedure by which representative samples of the hazardous secondary material are collected such that a minimum loss of organics occurs throughout the sample collection and handling process and by which sample integrity is maintained. A copy of the written site sampling plan shall be maintained at the facility. An example of acceptable sample collection and handling procedures is in method 25D in 40 CFR Part 60 appendix A.
- (b) Analysis. Any appropriate one of the following methods may be used to analyze the samples and compute the maximum organic vapor pressure of the hazardous secondary material:
- (i) Method 25E in 40 CFR Part 60 appendix A;
- (ii) Methods described in "American Petroleum Institute Publication 2517, Third Edition, February 1989," "Evaporative Loss from External Floating-Roof Tanks," (incorporated by reference- see rule 3745-50-11 of the Administrative Code);
- (iii) Methods obtained from standard reference texts;
- (iv) ASTM method D2879-92 (incorporated by reference-see rule 3745-50-11 of the Administrative Code); and
- (v) Any other method approved by the director.
- (4) Use of knowledge to determine the maximum organic vapor pressure of the hazardous secondary material. Documentation shall be prepared and recorded that presents the information used as the basis for the knowledge by the remanufacturer or other person who stores or treats the hazardous secondary

material that the maximum organic vapor pressure of the hazardous secondary material is less than the maximum vapor pressure limit listed in paragraph (B)(1)(a) of rule 3745-51-785 of the Administrative Code for the applicable tank design capacity category. An example of information that may be used is documentation that the hazardous secondary material is generated by a process for which at other locations it previously has been determined by direct measurement that the hazardous secondary material's waste maximum organic vapor pressure is less than the maximum vapor pressure limit for the appropriate tank design capacity category.

(D) Procedure for determining no detectable organic emissions for the purpose of complying with rules 3745-51-780 to 3745-51-789 of the Administrative Code.

(1) The test shall be conducted in accordance with the procedures specified in method 21 of 40 CFR Part 60 appendix A. Each potential leak interface (i.e., a location where organic vapor leakage could occur) on the cover and associated closure devices shall be checked. Potential leak interfaces that are associated with covers and closure devices include, but are not limited to, the interface of the cover and the cover's foundation mounting, the periphery of any opening on the cover and associated closure device, and the sealing seat interface on a spring-loaded pressure relief valve.

(2) The test shall be performed when the unit contains a hazardous secondary material having an organic concentration representative of the range of concentrations for the hazardous secondary material expected to be managed in the unit. During the test, the cover and closure devices shall be secured in the closed position.

(3) The detection instrument shall meet the performance criteria of method 21 of 40 CFR Part 60 appendix A, except the instrument response factor criteria in section 3.1.2(a) of method 21 shall be for the average composition of the organic constituents in the hazardous secondary material placed in the hazardous secondary management unit, not for each individual organic constituent.

(4) The detection instrument shall be calibrated before use on each day of use by the procedures specified in method 21 of 40 CFR Part 60 appendix A.

(5) Calibration gases shall be as follows:

(a) Zero air (less than ten parts per million by volume (ppmv) hydrocarbon in air), and

- (b) A mixture of methane or n-hexane and air at a concentration of approximately, but less than, ten thousand parts per million by volume (ppmv) methane or n-hexane.
- (6) The background level shall be determined according to the procedures in method 21 of 40 CFR Part 60 appendix A.
- (7) Each potential leak interface shall be checked by traversing the instrument probe around the potential leak interface as close to the interface as possible, as described in method 21 of 40 CFR Part 60 appendix A. In the case when the configuration of the cover or closure device prevents a complete traverse of the interface, all accessible portions of the interface shall be sampled. In the case when the configuration of the closure device prevents any sampling at the interface and the device is equipped with an enclosed extension or horn (e.g., some pressure relief devices), the instrument probe inlet shall be placed at approximately the center of the exhaust area to the atmosphere.
- (8) The arithmetic difference between the maximum organic concentration indicated by the instrument and the background level shall be compared with the value of five hundred parts per million by volume (ppmv) except when monitoring a seal around a rotating shaft that passes through a cover opening, in which case the comparison shall be as specified in paragraph (D)(9) of this rule. If the difference is less than five hundred parts per million by volume (ppmv), then the potential leak interface is determined to operate with no detectable organic emissions.
- (9) For the seals around a rotating shaft that passes through a cover opening, the arithmetic difference between the maximum organic concentration indicated by the instrument and the background level shall be compared with the value of ten thousand ppmw. If the difference is less than ten thousand ppmw, then the potential leak interface is determined to operate with no detectable organic emissions.

[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."]

Effective: 6/12/2023

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06/02/2023

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3745-51-784**Tanks - air emission standards for tanks and containers.**

(A) This rule applies to the control of air pollutant emissions from tanks for which paragraph (B) of rule 3745-51-782 of the Administrative Code references the use of this rule for such air emission control.

(B) The remanufacturer or other person who stores or treats the hazardous secondary material shall control air pollutant emissions from each tank subject to this rule in accordance with the following requirements as applicable:

(1) For a tank that manages hazardous secondary material that meets all of the conditions specified in paragraphs (B)(1)(a) to (B)(1)(c) of this rule, the remanufacturer or other person who stores or treats the hazardous secondary material shall control air pollutant emissions from the tank in accordance with the "Tank Level 1" controls specified in paragraph (C) of this rule or the "Tank Level 2" controls specified in paragraph (D) of this rule.

(a) The hazardous secondary material in the tank has a maximum organic vapor pressure which is less than the maximum organic vapor pressure limit for the tank's design capacity category as follows:

(i) For a tank design capacity equal to or greater than one hundred fifty-one cubic meters (m³), the maximum organic vapor pressure limit for the tank is 5.2 kilopascals (kPa).

(ii) For a tank design capacity equal to or greater than seventy-five m³ but less than one hundred fifty-one m³, the maximum organic vapor pressure limit for the tank is 27.6 kPa.

(iii) For a tank design capacity less than seventy-five m³, the maximum organic vapor pressure limit for the tank is 76.6 kPa.

(b) The hazardous secondary material in the tank is not heated by the remanufacturer or other person who stores or treats the hazardous secondary material to a temperature that is greater than the temperature at which the maximum organic vapor pressure of the hazardous secondary material is determined for the purpose of complying with paragraph (B)(1)(a) of this rule.

(2) For a tank that manages hazardous secondary material that does not meet all of the conditions specified in paragraphs (B)(1)(a) to (B)(1)(c) of this rule, the remanufacturer or other person stores or treats the hazardous secondary material shall control air pollutant emissions from the tank by using "Tank Level 2"

controls in accordance with the requirements of paragraph (D) of this rule. An example of tanks required to use "Tank Level 2" controls is a tank for which the hazardous secondary material in the tank has a maximum organic vapor pressure that is equal to or greater than the maximum organic vapor pressure limit for the tank's design capacity category as specified in paragraph (B)(1)(a) of this rule.

(C) Remanufacturers or other persons who store or treats the hazardous secondary material controlling air pollutant emissions from a tank using "Tank Level 1" controls shall meet the requirements specified in paragraphs (C)(1) to (C)(4) of this rule:

(1) The remanufacturer or other person who stores or treats that hazardous secondary material shall determine the maximum organic vapor pressure for a hazardous secondary material to be managed in the tank using "Tank Level 1" controls before the first time the hazardous secondary material is placed in the tank. The maximum organic vapor pressure shall be determined using the procedures specified in paragraph (C) of rule 3745-51-783 of the Administrative Code. Thereafter, the remanufacturer or other person who stores or treats the hazardous secondary material shall perform a new determination whenever changes to the hazardous secondary material managed in the tank could potentially cause the maximum organic vapor pressure to increase to a level that is equal to or greater than the maximum organic vapor pressure limit for the tank design capacity category specified in paragraph (B)(1)(a) of this rule, as applicable to the tank.

(2) The tank shall be equipped with a fixed roof designed to meet the following specifications:

(a) The fixed roof and the fixed roof's closure devices shall be designed to form a continuous barrier over the entire surface area of the hazardous secondary material in the tank. The fixed roof may be a separate cover installed on the tank (e.g., a removable cover mounted on an open-top tank) or may be an integral part of the tank structural design (e.g., a horizontal cylindrical tank equipped with a hatch).

(b) The fixed roof shall be installed in a manner such that there are no visible cracks, holes, gaps, or other open spaces between roof section joints or between the interface of the roof edge and the tank wall.

(c) Each opening in the fixed roof, and any manifold system associated with the fixed roof, shall be either:

- (i) Equipped with a closure device designed to operate such that when the closure device is secured in the closed position there are no visible cracks, holes, gaps, or other open spaces in the closure device or between the perimeter of the opening and the closure device; or
 - (ii) Connected by a closed-vent system that is vented to a control device. The control device shall remove or destroy organics in the vent stream, and shall be operating whenever hazardous secondary material is managed in the tank, except as provided for in paragraphs (C)(2)(c)(ii)(1) to (C)(2)(c)(ii)(2) of this rule.

 - (a) During periods when it is necessary to provide access to the tank for performing the activities of paragraph (C)(2)(c)(ii)(2) of this rule, venting of the vapor headspace underneath the fixed roof to the control device is not required, opening of closure devices is allowed, and removal of the fixed roof is allowed. After completion of the activity, the remanufacturer or other person who stores or treats the hazardous secondary material shall promptly secure the closure device in the closed position or reinstall the cover, as applicable, and resume operation of the control device.
 - (b) During periods of routine inspection, maintenance, or other activities needed for normal operations, and for removal of accumulated sludge or other residues from the bottom of the tank.
 - (d) The fixed roof and the fixed roof's closure devices shall be made of suitable materials that will minimize exposure of the hazardous secondary material to the atmosphere, to the extent practical, and will maintain the integrity of the fixed roof and closure devices throughout their intended service life. Factors to be considered when selecting the materials for and designing the fixed roof and closure devices shall include organic vapor permeability, the effects of any contact with the hazardous secondary material or its vapors managed in the tank; the effects of outdoor exposure to wind, moisture, and sunlight; and the operating practices used for the tank on which the fixed roof is installed.
- (3) Whenever a hazardous secondary material is in the tank, the fixed roof shall be installed with each closure device secured in the closed position except as follows:

- (a) Opening of closure devices or removal of the fixed roof is allowed at the following times:
- (i) To provide access to the tank for performing routine inspection, maintenance, or other activities needed for normal operations. Examples of such activities include those times when a worker needs to open a port to sample the liquid in the tank, or when a worker needs to open a hatch to maintain or repair equipment. After completion of the activity, the remanufacturer or other person who stores or treats the hazardous secondary material shall promptly secure the closure device in the closed position or reinstall the cover, as applicable, to the tank.
 - (ii) To remove accumulated sludge or other residues from the bottom of tank.
- (b) Opening of a spring-loaded pressure-vacuum relief valve, conservation vent, or similar type of pressure relief device which vents to the atmosphere is allowed during normal operations for the purpose of maintaining the tank internal pressure in accordance with the tank design specifications. The device shall be designed to operate with no detectable organic emissions when the device is secured in the closed position. The settings at which the device opens shall be established such that the device remains in the closed position whenever the tank internal pressure is within the internal pressure operating range determined by the remanufacturer or other person who stores or treats the hazardous secondary material based on the tank manufacturer recommendations, applicable regulations, fire protection and prevention codes, standard engineering codes and practices, or other requirements for the safe handling of flammable, ignitable, explosive, reactive, or hazardous materials. Examples of normal operating conditions that may require these devices to open are during those times when the tank internal pressure exceeds the internal pressure operating range for the tank as a result of loading operations or diurnal ambient temperature fluctuations.
- (c) Opening of a "safety device," as defined in rule 3745-51-781 of the Administrative Code, is allowed at any time conditions require doing so to avoid an unsafe condition.
- (4) The remanufacturer or other person who stores or treats the hazardous secondary material shall inspect the air emission control equipment in accordance with the following requirements

- (a) The fixed roof and the fixed roof's closure devices shall be visually inspected by the remanufacturer or other person who stores or treats the hazardous secondary material to check for defects that could result in air pollutant emissions. Defects include, but are not limited to, visible cracks, holes, or gaps in the roof sections or between the roof and the tank wall; broken, cracked, or otherwise damaged seals or gaskets on closure devices; and broken or missing hatches, access covers, caps, or other closure devices.
 - (b) The remanufacturer or other person who stores or treats the hazardous secondary material shall perform an initial inspection of the fixed roof and the fixed roof's closure devices on or before the date that the tank becomes subject to this rule. Thereafter, the remanufacturer or other person who stores or treats the hazardous secondary material shall perform the inspections at least once every year except under the special conditions provided for in paragraph (L) of this rule.
 - (c) In the event that a defect is detected, the remanufacturer or other person who stores or treats the hazardous secondary material shall repair the defect in accordance with the requirements of paragraph (K) of this rule.
 - (d) The remanufacturer or other person who stores or treats the hazardous secondary material shall maintain a record of the inspection in accordance with the requirements specified in paragraph (B) of rule 3745-51-789 of the Administrative Code.
- (D) Remanufacturers or other persons who store or treat the hazardous secondary material controlling air pollutant emissions from a tank using "Tank Level 2" controls shall use one of the following tanks:
- (1) A fixed-roof tank equipped with an internal floating roof in accordance with the requirements specified in paragraph (E) of this rule;
 - (2) A tank equipped with an external floating roof in accordance with the requirements specified in paragraph (F) of this rule;
 - (3) A tank vented through a closed-vent system to a control device in accordance with the requirements specified in paragraph (G) of this rule;
 - (4) A pressure tank designed and operated in accordance with the requirements specified in paragraph (H) of this rule; or
 - (5) A tank located inside an enclosure that is vented through a closed-vent system to an enclosed combustion control device in accordance with the requirements specified in paragraph (I) of this rule.

(E) The remanufacturer or other person who stores or treats the hazardous secondary material who controls air pollutant emissions from a tank using a fixed roof with an internal floating roof shall meet the requirements specified in paragraphs (E)(1) to (E)(3) of this rule.

(1) The tank shall be equipped with a fixed roof and an internal floating roof in accordance with the following requirements:

(a) The internal floating roof shall be designed to float on the liquid surface except when the floating roof shall be supported by the leg supports.

(b) The internal floating roof shall be equipped with a continuous seal between the wall of the tank and the floating roof edge that meets either of the following requirements:

(i) A single continuous seal that is either a "liquid-mounted seal" or a "metallic shoe seal," as defined in rule 3745-51-781 of the Administrative Code; or

(ii) Two continuous seals mounted one above the other. The lower seal may be a vapor-mounted seal.

(c) The internal floating roof shall meet the following specifications:

(i) Each opening in a noncontact internal floating roof except for automatic bleeder vents (vacuum breaker vents) and the rim space vents is to provide a projection below the liquid surface.

(ii) Each opening in the internal floating roof shall be equipped with a gasketed cover or a gasketed lid except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains.

(iii) Each penetration of the internal floating roof for the purpose of sampling shall have a slit fabric cover that covers at least ninety per cent of the opening.

(iv) Each automatic bleeder vent and rim space vent shall be gasketed.

(v) Each penetration of the internal floating roof that allows for passage of a ladder shall have a gasketed sliding cover.

- (vi) Each penetration of the internal floating roof that allows for passage of a column supporting the fixed roof shall have a flexible fabric sleeve seal or a gasketed sliding cover.
- (2) The remanufacturer or other person who stores or treats the hazardous secondary material shall operate the tank in accordance with the following requirements:

 - (a) When the floating roof is resting on the leg supports, the process of filling, emptying, or refilling shall be continuous and shall be completed as soon as practical.
 - (b) Automatic bleeder vents are to be set closed at all times when the roof is floating, except when the roof is being floated off or is being landed on the leg supports.
 - (c) Prior to filling the tank, each cover, access hatch, gauge float well or lid on any opening in the internal floating roof shall be bolted or fastened closed (i.e., no visible gaps). Rim space vents are to be set to open only when the internal floating roof is not floating or when the pressure beneath the rim exceeds the manufacturer's recommended setting.
- (3) The remanufacturer or other person who stores or treats the hazardous secondary material shall inspect the internal floating roof in accordance with the procedures specified as follows:

 - (a) The floating roof and the floating roof's closure devices shall be visually inspected by the remanufacture or other person who stores or treats the hazardous secondary material to check for defects that could result in air pollutant emissions. Defects include, but are not limited to, the internal floating roof is not floating on the surface of the liquid inside the tank; liquid has accumulated on top of the internal floating roof; any portion of the roof seals have detached from the roof rim; holes, tears, or other openings are visible in the seal fabric; the gaskets no longer close off the hazardous secondary material surface from the atmosphere; or the slotted membrane has more than ten per cent open area.
 - (b) The remanufacturer or other person who stores or treats the hazardous secondary material shall inspect the internal floating roof components as follows except as provided in paragraph (E)(3)(c) of this rule:

 - (i) Visually inspect the internal floating roof components through openings on the fixed-roof (e.g., manholes and roof hatches) at least once every twelve months after initial fill, and

- (ii) Visually inspect the internal floating roof, primary seal, secondary seal (if one is in service), gaskets, slotted membranes, and sleeve seals (if any) each time the tank is emptied and degassed and at least every ten years.
- (c) As an alternative to performing the inspections specified in paragraph (E)(3)(b) of this rule for an internal floating roof equipped with two continuous seals mounted one above the other, the remanufacturer or other person who stores or treats the hazardous secondary material may visually inspect the internal floating roof, primary and secondary seals, gaskets, slotted membranes, and sleeve seals (if any) each time the tank is emptied and degassed and at least every five years.
- (d) Prior to each inspection required by paragraph (E)(3)(b) or (E)(3)(c) of this rule, the remanufacturer or other person who stores or treats the hazardous secondary material shall notify the director in advance of each inspection to provide the director with the opportunity to have an observer present during the inspection. The remanufacturer or other person who stores or treats the hazardous secondary material shall notify the director of the date and location of the inspection as follows:

 - (i) Prior to each visual inspection of an internal floating roof in a tank that has been emptied and degassed, written notification shall be prepared and sent by the remanufacturer or other person who stores or treats the hazardous secondary material so that the notification is received by the director at least thirty calendar days before refilling the tank except when an inspection is not planned as provided for in paragraph (E)(3)(d)(ii) of this rule.
 - (ii) When a visual inspection is not planned and the remanufacturer or other person who stores or treats the hazardous secondary material could not have known about the inspection thirty calendar days before refilling the tank, the remanufacturer or other person who stores or treats the hazardous secondary material shall notify the director as soon as possible, but no later than seven calendar days before refilling of the tank. This notification may be made by telephone and immediately followed by a written explanation for why the inspection is unplanned. Alternatively, written notification, including the explanation for the unplanned inspection, may be sent so that the notification is received by the director at least seven calendar days before refilling the tank.

- (e) In the event that a defect is detected, the remanufacturer or other person who stores or treats the hazardous secondary material shall repair the defect in accordance with the requirements of paragraph (K) of this rule.
- (f) The remanufacturer or other person who stores or treats the hazardous secondary material shall maintain a record of the inspection in accordance with the requirements specified in paragraph (B) of rule 3745-51-789 of the Administrative Code.
- (4) "Safety devices," as defined in rule 3745-51-781 of the Administrative Code, may be installed and operated as necessary on any tank complying with the requirements of paragraph (E) of this rule.
- (F) The remanufacturer or other person who stores or treats the hazardous secondary material who controls air pollutant emissions from a tank using an external floating roof shall meet the requirements specified in paragraphs (F)(1) to (F)(3) of this rule.

 - (1) The remanufacturer or other person who stores or treats the hazardous secondary material shall design the external floating roof in accordance with the following requirements:

 - (a) The external floating roof shall be designed to float on the liquid surface except when the floating roof shall be supported by the leg supports.
 - (b) The floating roof shall be equipped with two continuous seals, one above the other, between the wall of the tank and the roof edge. The lower seal is referred to as the primary seal, and the upper seal is referred to as the secondary seal.

 - (i) The primary seal shall be a "liquid-mounted seal" or a "metallic shoe seal," as defined in rule 3745-51-781 of the Administrative Code. The total area of the gaps between the tank wall and the primary seal shall not exceed two hundred twelve square centimeters (cm²) per meter of tank diameter, and the width of any portion of these gaps shall not exceed 3.8 centimeters (cm). If a metallic shoe seal is used for the primary seal, the metallic shoe seal shall be designed so that one end extends into the liquid in the tank and the other end extends a vertical distance of at least sixty-one centimeters above the liquid surface.
 - (ii) The secondary seal shall be mounted above the primary seal and cover the annular space between the floating roof and the wall of the tank. The total area of the gaps between the tank wall and the secondary

seal shall not exceed 21.2 square centimeters (cm²) per meter of tank diameter, and the width of any portion of these gaps shall not exceed 1.3 centimeters (cm).

(c) The external floating roof shall meet the following specifications:

- (i) Except for automatic bleeder vents (vacuum breaker vents) and rim space vents, each opening in a noncontact external floating roof shall provide a projection below the liquid surface.
- (ii) Except for automatic bleeder vents, rim space vents, roof drains, and leg sleeves, each opening in the roof shall be equipped with a gasketed cover, seal, or lid.
- (iii) Each access hatch and each gauge float well shall be equipped with a cover designed to be bolted or fastened when the cover is secured in the closed position.
- (iv) Each automatic bleeder vent and each rim space vent shall be equipped with a gasket.
- (v) Each roof drain that empties into the liquid managed in the tank shall be equipped with a slotted membrane fabric cover that covers at least ninety per cent of the area of the opening.
- (vi) Each unslotted and slotted guide pole well shall be equipped with a gasketed sliding cover or a flexible fabric sleeve seal.
- (vii) Each unslotted guide pole shall be equipped with a gasketed cap on the end of the pole.
- (viii) Each slotted guide pole shall be equipped with a gasketed float or other device which closes off the liquid surface from the atmosphere.
- (ix) Each gauge hatch and each sample well shall be equipped with a gasketed cover.

(2) The remanufacturer or other person who stores or treats the hazardous secondary material shall operate the tank in accordance with the following requirements:

- (a) When the floating roof is resting on the leg supports, the process of filling, emptying, or refilling shall be continuous and shall be completed as soon as practical.

- (b) Except for automatic bleeder vents, rim space vents, roof drains, and leg sleeves, each opening in the roof shall be secured and maintained in a closed position at all times except when the closure device shall be open for access.
 - (c) Covers on each access hatch and each gauge float well shall be bolted or fastened when secured in the closed position.
 - (d) Automatic bleeder vents shall be set closed at all times when the roof is floating, except when the roof is being floated off or is being landed on the leg supports.
 - (e) Rim space vents shall be set to open only at those times that the roof is being floated off the roof leg supports or when the pressure beneath the rim seal exceeds the manufacturer's recommended setting.
 - (f) The cap on the end of each unslotted guide pole shall be secured in the closed position at all times except when measuring the level or collecting samples of the liquid in the tank.
 - (g) The cover on each gauge hatch or sample well shall be secured in the closed position at all times except when the hatch or well shall be opened for access.
 - (h) Both the primary seal and the secondary seal shall completely cover the annular space between the external floating roof and the wall of the tank in a continuous fashion except during inspections.
- (3) The remanufacturer or other person who stores or treats the hazardous secondary material shall inspect the external floating roof in accordance with the procedures specified as follows:
- (a) The remanufacturer or other person who stores or treats the hazardous secondary material shall measure the external floating roof seal gaps in accordance with the following requirements:
 - (i) The remanufacturer or other person who stores or treats the hazardous secondary material shall perform measurements of gaps between the tank wall and the primary seal within sixty calendar days after initial operation of the tank after installation of the floating roof and, thereafter, at least once every five years.
 - (ii) The remanufacturer or other person who stores or treats the hazardous secondary material shall perform measurements of gaps between

the tank wall and the secondary seal within sixty calendar days after initial operation of the tank after installation of the floating roof and, thereafter, at least once every year.

(iii) If a tank ceases to hold hazardous secondary material for a period of one year or more, subsequent introduction of hazardous secondary material into the tank shall be considered an initial operation for the purposes of paragraphs (F)(3)(a)(i) to (F)(3)(a)(ii) of this rule.

(iv) The remanufacturer or other person who stores or treats the hazardous secondary material shall determine the total surface area of gaps in the primary seal and in the secondary seal individually using the following procedure:

(a) The seal gap measurements shall be performed at one or more floating roof levels when the roof is floating off the roof supports.

(b) Seal gaps, if any, shall be measured around the entire perimeter of the floating roof in each place where a 0.32-centimeter (cm) diameter uniform probe passes freely (without forcing or binding against the seal) between the seal and the wall of the tank and measure the circumferential distance of each such location.

(c) For a seal gap measured under paragraph (F)(3) of this rule, the gap surface area shall be determined by using probes of various widths to measure accurately the actual distance from the tank wall to the seal and multiplying each such width by its respective circumferential distance.

(d) The total gap area shall be calculated by adding the gap surface areas determined for each identified gap location for the primary seal and the secondary seal individually, and then dividing the sum for each seal type by the nominal diameter of the tank. These total gap areas for the primary seal and secondary seal are then compared to the respective standards for the seal type as specified in paragraph (F)(1)(b) of this rule.

(v) In the event that the seal gap measurements do not conform to the specifications in paragraph (F)(1)(b) of this rule, the remanufacturer or other person who stores or treats the hazardous

secondary material shall repair the defect in accordance with the requirements of paragraph (K) of this rule.

(vi) The remanufacturer or other person who stores or treats the hazardous secondary material shall maintain a record of the inspection in accordance with the requirements specified in paragraph (B) of rule 3745-51-789 of the Administrative Code.

(b) The remanufacturer or other person who stores or treats the hazardous secondary material shall visually inspect the external floating roof in accordance with the following requirements:

(i) The floating roof and the floating roof's closure devices shall be visually inspected by the remanufacturer or other person who stores or treats the hazardous secondary material to check for defects that could result in air pollutant emissions. Defects include, but are not limited to, holes, tears, or other openings in the rim seal or seal fabric of the floating roof; a rim seal detached from the floating roof; all or a portion of the floating roof deck being submerged below the surface of the liquid in the tank; broken, cracked, or otherwise damaged seals or gaskets on closure devices; and broken or missing hatches, access covers, caps, or other closure devices.

(ii) The remanufacturer or other person who stores or treats the hazardous secondary material shall perform an initial inspection of the external floating roof and if the external floating roof's closure devices on or before the date that the tank becomes subject to this rule. Thereafter, the remanufacturer or other person who stores or treats the hazardous secondary material shall perform the inspections at least once every year except for the special conditions provided for in paragraph (L) of this rule.

(iii) In the event that a defect is detected, the remanufacturer or other person who stores or treats the hazardous secondary material shall repair the defect in accordance with the requirements of paragraph (K) of this rule.

(iv) The remanufacturer or other person who stores or treats the hazardous secondary material shall maintain a record of the inspection in accordance with the requirements specified in paragraph (B) of rule 3745-51-789 of the Administrative Code.

(c) Prior to each inspection required by paragraph (F)(3)(a) or (F)(3)(b) of this rule, the remanufacturer or other person who stores or treats the hazardous secondary material shall notify the director in advance of each inspection to provide the director with the opportunity to have an observer present during the inspection. The remanufacturer or other person who stores or treats the hazardous secondary material shall notify the director of the date and location of the inspection as follows:

(i) Prior to each inspection to measure external floating roof seal gaps as required under paragraph (F)(3)(a) of this rule, written notification shall be prepared and sent by the remanufacturer or other person who stores or treats the hazardous secondary material so that the notification is received by the director at least thirty calendar days before the date the measurements are scheduled to be performed.

(ii) Prior to each visual inspection of an external floating roof in a tank that has been emptied and degassed, written notification shall be prepared and sent by the remanufacturer or other person who stores or treats the hazardous secondary material so that the notification is received by the director at least thirty calendar days before refilling the tank except when an inspection is not planned as provided for in paragraph (F)(3)(c)(iii) of this rule.

(iii) When a visual inspection is not planned and the remanufacturer or other person who stores or treats the hazardous secondary material could not have known about the inspection thirty calendar days before refilling the tank, the owner or operator shall notify the director as soon as possible, but no later than seven calendar days before refilling of the tank. This notification may be made by telephone and immediately followed by a written explanation for why the inspection is unplanned. Alternatively, written notification, including the explanation for the unplanned inspection, may be sent so that the notification is received by the director at least seven calendar days before refilling the tank.

(4) "Safety devices," as defined in rule 3745-51-781 of the Administrative Code, may be installed and operated as necessary on any tank complying with the requirements of paragraph (F) of this rule.

(G) The remanufacturer or other person who stores or treats the hazardous secondary material who controls air pollutant emissions from a tank by venting the tank to a control device shall meet the requirements specified in paragraphs (G)(1) to (G)(3) of this rule.

- (1) The tank shall be covered by a fixed roof and vented directly through a closed-vent system to a control device in accordance with the following requirements:
- (a) The fixed roof and the fixed roof's closure devices shall be designed to form a continuous barrier over the entire surface area of the liquid in the tank.
 - (b) Each opening in the fixed roof not vented to the control device shall be equipped with a closure device. If the pressure in the vapor headspace underneath the fixed roof is less than atmospheric pressure when the control device is operating, the closure devices shall be designed to operate such that when the closure device is secured in the closed position there are no visible cracks, holes, gaps, or other open spaces in the closure device or between the perimeter of the cover opening and the closure device. If the pressure in the vapor headspace underneath the fixed roof is equal to or greater than atmospheric pressure when the control device is operating, the closure device shall be designed to operate with no detectable organic emissions.
 - (c) The fixed roof and the fixed roof's closure devices shall be made of suitable materials that will minimize exposure of the hazardous secondary material to the atmosphere, to the extent practical, and will maintain the integrity of the fixed roof and closure devices throughout the intended service life of the fixed roof and closure devices. Factors to be considered when selecting the materials for and designing the fixed roof and closure devices shall include organic vapor permeability, the effects of any contact with the liquid and the liquid's vapor managed in the tank; the effects of outdoor exposure to wind, moisture, and sunlight; and the operating practices used for the tank on which the fixed roof is installed.
 - (d) The closed-vent system and control device shall be designed and operated in accordance with the requirements of rule 3745-51-787 of the Administrative Code.
- (2) Whenever a hazardous secondary material is in the tank, the fixed roof shall be installed with each closure device secured in the closed position and the vapor headspace underneath the fixed roof vented to the control device except as follows:
- (a) Venting to the control device is not required, and opening of closure devices or removal of the fixed roof is allowed at the following times:
 - (i) To provide access to the tank for performing routine inspection, maintenance, or other activities needed for normal operations.

Examples of such activities include those times when a worker needs to open a port to sample liquid in the tank, or when a worker needs to open a hatch to maintain or repair equipment. After completion of the activity, the remanufacturer or other person who stores or treats the hazardous secondary material shall promptly secure the closure device in the closed position or reinstall the cover, as applicable, to the tank.

(ii) To remove accumulated sludge or other residues from the bottom of a tank.

(b) Opening of a "safety device," as defined in rule 3745-51-781 of the Administrative Code, is allowed at any time conditions require doing so to avoid an unsafe condition.

(3) The remanufacturer or other person who stores or treats the hazardous secondary material shall inspect and monitor the air emission control equipment in accordance with the following procedures:

(a) The fixed roof and the fixed roof's closure devices shall be visually inspected by the remanufacturer or other person who stores or treats the hazardous secondary material to check for defects that could result in air pollutant emissions. Defects include, but are not limited to, visible cracks, holes, or gaps in the roof sections or between the roof and the tank wall; broken, cracked, or otherwise damaged seals or gaskets on closure devices; and broken or missing hatches, access covers, caps, or other closure devices.

(b) The closed-vent system and control device shall be inspected and monitored by the remanufacturer or other person who stores or treats the hazardous secondary material in accordance with the procedures specified in rule 3745-51-787 of the Administrative Code.

(c) The remanufacturer or other person who stores or treats the hazardous secondary material shall perform an initial inspection of the air emission control equipment on or before the date that the tank becomes subject to this rule. Thereafter, the remanufacturer or other person who stores or treats the hazardous secondary material shall perform the inspections at least once every year except for the special conditions provided for in paragraph (L) of this rule.

(d) In the event that a defect is detected, the remanufacture or other person who stores or treats the hazardous secondary material shall repair the defect in accordance with the requirements of paragraph (K) of this rule.

- (e) The remanufacturer or other person who stores or treats the hazardous secondary material shall maintain a record of the inspection in accordance with the requirements specified in paragraph (B) of rule 3745-51-789 of the Administrative Code.
- (H) The remanufacturer or other person who stores or treats the hazardous secondary material who controls air pollutant emissions by using a pressure tank shall meet the following requirements.
- (1) The tank shall be designed not to vent to the atmosphere as a result of compression of the vapor headspace in the tank during filling of the tank to the tank's design capacity.
- (2) All tank openings shall be equipped with closure devices designed to operate with no detectable organic emissions as determined using the procedure specified in paragraph (D) of rule 3745-51-783 of the Administrative Code.
- (3) Whenever a hazardous secondary material is in the tank, the tank shall be operated as a closed system that does not vent to the atmosphere except under either or the following conditions as specified in paragraph (H)(3)(a) or (H)(3)(b) of this rule.
- (a) At those times when opening of a "safety device," as defined in rule 3745-51-781 of the Administrative Code, is required to avoid an unsafe condition.
- (b) At those times when purging of inerts from the tank is required and the purge stream is routed to a closed-vent system and control device designed and operated in accordance with the requirements of rule 3745-51-787 of the Administrative Code.
- (I) The remanufacturer or other person who stores or treats the hazardous secondary material who controls air pollutant emissions by using an enclosure vented through a closed-vent system to an enclosed combustion control device shall meet the requirements specified in paragraphs (I)(1) to (I)(4) of this rule.
- (1) The tank shall be located inside an enclosure. The enclosure shall be designed and operated in accordance with the criteria for a permanent total enclosure as specified in "Procedure T- Criteria for and Verification of a Permanent or Temporary Total Enclosure" under 40 CFR 52.741 appendix B. The enclosure may have permanent or temporary openings to allow worker access; passage of material into or out of the enclosure by conveyor, vehicles, or other mechanical means; entry of permanent mechanical or electrical equipment; or direct airflow

into the enclosure. The remanufacturer or other person who stores or treats the hazardous secondary material shall perform the verification procedure for the enclosure as specified in section 5.0 to "Procedure T- Criteria for and Verification of a Permanent or Temporary Total Enclosure" initially when the enclosure is first installed and, thereafter, annually.

- (2) The enclosure shall be vented through a closed-vent system to an enclosed combustion control device that is designed and operated in accordance with the standards for either a vapor incinerator, boiler, or process heater specified in rule 3745-51-787 of the Administrative Code.
 - (3) "Safety devices," as defined in rule 3745-51-781 of the Administrative Code, may be installed and operated as necessary on any enclosure, closed-vent system, or control device used to comply with the requirements of paragraphs (I)(1) to (I)(2) of this rule.
 - (4) The remanufacturer or other person who stores or treats the hazardous secondary material shall inspect and monitor the closed-vent system and control device as specified in rule 3745-51-787 of the Administrative Code.
- (J) The remanufacturer or other person who stores or treats the hazardous secondary material shall transfer hazardous secondary material to a tank subject to this rule in accordance with the following requirements:
- (1) Transfer of hazardous secondary material, except as provided in paragraph (J)(2) of this rule, to the tank from another tank subject to this rule shall be conducted using continuous hard-piping or another closed system that does not allow exposure of the hazardous secondary material to the atmosphere. For the purpose of complying with this provision, an individual drain system is considered to be a closed system when the individual drain system meets the requirements of 40 CFR Part 63 subpart RR- "National Emission Standards for Individual Drain Systems."
 - (2) The requirements of paragraph (J)(1) of this rule do not apply when transferring a hazardous secondary material to the tank under any of the following conditions:

 - (a) The hazardous secondary material meets the average VO concentration conditions specified in paragraph (C)(1) of rule 3745-51-782 of the Administrative Code at the point of material origination.
 - (b) The hazardous secondary material has been treated by an organic destruction or removal process to meet the requirements in paragraph (C)(2) of rule 3745-51-782 of the Administrative Code.

(c) The hazardous secondary material meets the requirements of paragraph (C)(4) of rule 3745-51-782 of the Administrative Code.

(K) The remanufacturer or other person who stores or treats the hazardous secondary material shall repair each defect detected during an inspection performed in accordance with the requirements of paragraph (C)(4), (E)(3), (F)(3), or (G)(3) of this rule as follows:

(1) The remanufacturer or other person who stores or treats the hazardous secondary material shall make first efforts at repair of the defect no later than five calendar days after detection, and repair shall be completed as soon as possible but no later than forty-five calendar days after detection except as provided in paragraph (K)(2) of this rule.

(2) Repair of a defect may be delayed beyond forty-five calendar days if the remanufacturer or other person who stores or treats the hazardous secondary material determines that repair of the defect requires emptying or temporary removal from service of the tank and no alternative tank capacity is available at the site to accept the hazardous secondary material normally managed in the tank. In this case, the remanufacturer or other person who stores or treats the hazardous secondary material shall repair the defect the next time the process or unit that is generating the hazardous secondary material managed in the tank stops operation. Repair of the defect shall be completed before the process or unit resumes operation.

(L) After the initial inspection and monitoring of the cover as required by the applicable provisions of rules 3745-51-780 to 3745-51-789 of the Administrative Code, subsequent inspection and monitoring may be performed at intervals longer than one year under the following special conditions:

(1) In the case when inspecting or monitoring the cover would expose a worker to dangerous, hazardous, or other unsafe conditions, then the remanufacturer or other person who stores or treats the hazardous secondary material may designate a cover as an "unsafe to inspect and monitor cover" and comply with all of the following requirements:

(a) Prepare a written explanation for the cover stating the reasons why the cover is unsafe to visually inspect or monitor, if required.

(b) Develop and implement a written plan and schedule to inspect and monitor the cover, using the procedures specified in the applicable provision of rules 3745-51-780 to 3745-51-789 of the Administrative Code, as

frequently as practicable during those times when a worker can safely access the cover.

- (2) In the case when a tank is buried partially or entirely underground, a remanufacturer or other person who stores or treats the hazardous secondary material is required to inspect and monitor, as required by the applicable provisions of this rule, only those portions of the tank cover and those connections to the tank (e.g., fill ports, access hatches, gauge wells, etc.) that are located on or above the ground surface.

[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."]

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3745-51-786

Containers - air emission standards for tanks and containers.

(A) Applicability. This rule applies to the control of air pollutant emissions from containers for which paragraph (B) of rule 3745-51-782 of the Administrative Code references the use of this rule for such air emission control.

(B) General requirements.

(1) The remanufacturer or other person who stores or treats the hazardous secondary material shall control air pollutant emissions from each container subject to this rule in accordance with the following requirements, as applicable to the container.

(a) For a container having a design capacity greater than 0.1 m³ and less than or equal to 0.46 m³, the remanufacturer or other person who stores or treats the hazardous secondary material shall control air pollutant emissions from the container in accordance with the "Container Level 1" standards specified in paragraph (C) of this rule.

(b) For a container having a design capacity greater than 0.46 m³ that is not in light material service, the remanufacturer or other person who stores or treats the hazardous secondary material shall control air pollutant emissions from the container in accordance with the "Container Level 1" standards specified in paragraph (C) of this rule.

(c) For a container having a design capacity greater than 0.46 m³ that is in light material service, the remanufacturer or other person who stores or treats the hazardous secondary material shall control air pollutant emissions from the container in accordance with the "Container Level 2" standards specified in paragraph (D) of this rule.

(2) [Reserved.]

(C) "Container Level 1" standards.

(1) A container using "Container Level 1" controls is one of the following:

(a) A container that meets the applicable U.S. department of transportation (DOT) regulations on packaging hazardous materials for transportation as specified in paragraph (F) of this rule.

(b) A container equipped with a cover and closure devices that form a continuous barrier over the container openings such that when the cover and closure devices are secured in the closed position there are no visible

holes, gaps, or other open spaces into the interior of the container. The cover may be a separate cover installed on the container (e.g., a lid on a drum or a suitably secured tarp on a roll-off box) or may be an integral part of the container structural design (e.g., a "portable tank" or bulk cargo container equipped with a screw-type cap).

(c) An open-top container in which an organic-vapor suppressing barrier is placed on or over the hazardous secondary material in the container such that no hazardous secondary material is exposed to the atmosphere. One example of such a barrier is application of a suitable organic-vapor suppressing foam.

(2) A container used to meet the requirements of paragraph (C)(1)(b) or (C)(1)(c) of this rule shall be equipped with covers and closure devices, as applicable to the container, that are composed of suitable materials to minimize exposure of the hazardous secondary material to the atmosphere and to maintain the equipment integrity, for as long as the container is in service. Factors to be considered in selecting the materials of construction and designing the cover and closure devices shall include organic vapor permeability; the effects of contact with the hazardous secondary material or its vapor managed in the container; the effects of outdoor exposure of the closure device or cover material to wind, moisture, and sunlight; and the operating practices for which the container is intended to be used.

(3) Whenever a hazardous secondary material is in a container using "Container Level 1" controls, the remanufacturer or other person who stores or treats the hazardous secondary material shall install all covers and closure devices for the container, as applicable to the container, and secure and maintain each closure device in the closed position except as follows:

(a) Opening of a closure device or cover is allowed for the purpose of adding hazardous secondary material or other material to the container as follows:

(i) In the case when the container is filled to the intended final level in one continuous operation, the remanufacturer or other person who stores or treats the hazardous secondary material shall promptly secure the closure devices in the closed position and install the covers, as applicable to the container, upon conclusion of the filling operation.

(ii) In the case when discrete quantities or batches of material intermittently are added to the container over a period of time, the

remanufacturer or other person who stores or treats the hazardous secondary material shall promptly secure the closure devices in the closed position and install covers, as applicable to the container, upon either the container being filled to the intended final level; the completion of a batch loading after which no additional material will be added to the container within fifteen minutes; the person performing the loading operation leaving the immediate vicinity of the container; or the shutdown of the process generating the hazardous secondary material being added to the container, whichever condition occurs first.

(b) Opening of a closure device or cover is allowed for the purpose of removing hazardous secondary material from the container as follows:

(i) For the purpose of meeting the requirements of this rule, an empty hazardous secondary material container may be open to the atmosphere at any time (i.e., covers and closure devices on such a container are not required to be secured in the closed position).

(ii) In the case when discrete quantities or batches of material are removed from the container, but the container is not an empty hazardous secondary material container, the remanufacturer or other person who stores or treats the hazardous secondary material shall promptly secure the closure devices in the closed position and install covers, as applicable to the container, upon the completion of a batch removal after which no additional material will be removed from the container within fifteen minutes or the person performing the unloading operation leaves the immediate vicinity of the container, whichever condition occurs first.

(c) Opening of a closure device or cover is allowed when access inside the container is needed to perform routine activities other than transfer of hazardous secondary material. Examples of such activities include those times when a worker needs to open a port to measure the depth of or sample the material in the container, or when a worker needs to open a manhole hatch to access equipment inside the container. After completion of the activity, the remanufacturer or other person who stores or treats the hazardous secondary material shall promptly secure the closure device in the closed position or reinstall the cover, as applicable to the container.

(d) Opening of a spring-loaded pressure-vacuum relief valve, conservation vent, or similar type of pressure relief device which vents to the atmosphere is allowed during normal operations for the purpose of

maintaining the internal pressure of the container in accordance with the container design specifications. The device shall be designed to operate with no detectable organic emissions when the device is secured in the closed position. The settings at which the device opens shall be established such that the device remains in the closed position whenever the internal pressure of the container is within the internal pressure operating range determined by the remanufacturer or other persons who stores or treats the hazardous secondary material based on container manufacturer recommendations, applicable regulations, fire protection and prevention codes, standard engineering codes and practices, or other requirements for the safe handling of flammable, ignitable, explosive, reactive, or hazardous materials. Examples of normal operating conditions that may require these devices to open are during those times when the internal pressure of the container exceeds the internal pressure operating range for the container as a result of loading operations or diurnal ambient temperature fluctuations.

(e) Opening of a "safety device," as defined in rule 3745-51-781 of the Administrative Code, is allowed at any time conditions require doing so to avoid an unsafe condition.

(4) The remanufacturer or other person who stores or treats the hazardous secondary material using containers with "Container Level 1" controls shall inspect the containers and their covers and closure devices as follows:

(a) In the case when a hazardous secondary material already is in the container at the time the remanufacturer or other person who stores or treats the hazardous secondary material first accepts possession of the container at the facility and the container is not emptied within twenty-four hours after the container is accepted at the facility (i.e., is not an empty hazardous secondary material container) the remanufacturer or other person who stores or treats the hazardous secondary material shall visually inspect the container and the container's cover and closure devices to check for visible cracks, holes, gaps, or other open spaces into the interior of the container when the cover and closure devices are secured in the closed position. The container visual inspection shall be conducted on or before the date that the container is accepted at the facility (i.e., the date the container becomes subject to the container standards in rules 3745-51-780 to 3745-51-789 of the Administrative Code).

(b) In the case when a container used for managing hazardous secondary material remains at the facility for a period of one year or more, the remanufacturer or other person who stores or treats the hazardous

secondary material shall visually inspect the container and the container's cover and closure devices initially and thereafter, at least once every twelve months, to check for visible cracks, holes, gaps, or other open spaces into the interior of the container when the cover and closure devices are secured in the closed position. If a defect is detected, the remanufacturer or other person who stores or treats the hazardous secondary material shall repair the defect in accordance with the requirements of paragraph (C)(4)(c) of this rule.

(c) When a defect is detected for the container, cover, or closure devices, the remanufacturer or other person who stores or treats the hazardous secondary material shall make first efforts at repair of the defect no later than twenty-four hours after detection and repair shall be completed as soon as possible but no later than five calendar days after detection. If repair of a defect cannot be completed within five calendar days, then the hazardous secondary material shall be removed from the container and the container shall not be used to manage hazardous secondary material until the defect is repaired.

(5) The remanufacturer or other person who stores or treats the hazardous secondary material shall maintain at the facility a copy of the procedure used to determine that containers with capacity of 0.46 m³ or greater, which do not meet applicable U.S. DOT regulations as specified in paragraph (F) of this rule, are not managing hazardous secondary material in light material service.

(D) "Container Level 2" standards.

(1) A container using "Container Level 2" controls is one of the following:

(a) A container that meets the applicable U.S. DOT regulations on packaging hazardous materials for transportation as specified in paragraph (F) of this rule.

(b) A container that operates with no detectable "organic emissions," as defined in rule 3745-51-781 of the Administrative Code and determined in accordance with the procedure specified in paragraph (G) of this rule.

(c) A container that has been demonstrated within the preceding twelve months to be vapor-tight by using method 27 of 40 CFR Part 60 appendix A in accordance with the procedure specified in paragraph (H) of this rule.

(2) Transfer of hazardous secondary material in or out of a container using "Container Level 2" controls shall be conducted in such a manner as to minimize exposure

of the hazardous secondary material to the atmosphere, to the extent practical, considering the physical properties of the hazardous secondary material and good engineering and safety practices for handling flammable, ignitable, explosive, reactive, or other hazardous materials. Examples of container loading procedures that Ohio EPA considers to meet the requirements of this paragraph include using a submerged-fill pipe or other submerged-fill method to load liquids into the container; or a vapor-balancing system or a vapor-recovery system to collect and control the vapors displaced from the container during filling operations; or a fitted opening in the top of a container through which the hazardous secondary material is filled and subsequently purging the transfer line before removing the transfer line from the container opening.

(3) Whenever a hazardous secondary material is in a container using "Container Level 2" controls, the remanufacturer or other person who stores or treats the hazardous secondary material shall install all covers and closure devices for the container, and secure and maintain each closure device in the closed position except as follows:

(a) Opening of a closure device or cover is allowed for the purpose of adding hazardous secondary material or other material to the container as follows:

(i) In the case when the container is filled to the intended final level in one continuous operation, the remanufacture or other person who stores or treats the hazardous secondary material shall promptly secure the closure devices in the closed position and install the covers, as applicable to the container, upon conclusion of the filling operation.

(ii) In the case when discrete quantities or batches of material intermittently are added to the container over a period of time, the remanufacturer or other person who stores or treats the hazardous secondary material shall promptly secure the closure devices in the closed position and install covers, as applicable to the container, upon either the container being filled to the intended final level; the completion of a batch loading after which no additional material will be added to the container within fifteen minutes; the person performing the loading operation leaving the immediate vicinity of the container; or the shutdown of the process generating the material being added to the container, whichever condition occurs first.

(b) Opening of a closure device or cover is allowed for the purpose of removing hazardous secondary material from the container as follows:

- (i) For the purpose of meeting the requirements of this rule, an empty hazardous secondary material container may be open to the atmosphere at any time (i.e., covers and closure devices are not required to be secured in the closed position on an empty container).
- (ii) In the case when discrete quantities or batches of material are removed from the container, but the container is not an empty hazardous secondary materials container, the remanufacturer or other person who stores or treats the hazardous secondary material shall promptly secure the closure devices in the closed position and install covers, as applicable to the container, upon the completion of a batch removal after which no additional material will be removed from the container within fifteen minutes or the person performing the unloading operation leaves the immediate vicinity of the container, whichever condition occurs first.
- (c) Opening of a closure device or cover is allowed when access inside the container is needed to perform routine activities other than transfer of hazardous secondary material. Examples of such activities include those times when a worker needs to open a port to measure the depth of or sample the material in the container, or when a worker needs to open a manhole hatch to access equipment inside the container. After completion of the activity, the remanufacturer or other person who stores or treats the hazardous secondary material shall promptly secure the closure device in the closed position or reinstall the cover, as applicable to the container.
- (d) Opening of a spring-loaded, pressure-vacuum relief valve, conservation vent, or similar type of pressure relief device which vents to the atmosphere is allowed during normal operations for the purpose of maintaining the internal pressure of the container in accordance with the container design specifications. The device shall be designed to operate with no detectable organic emission when the device is secured in the closed position. The settings at which the device opens shall be established such that the device remains in the closed position whenever the internal pressure of the container is within the internal pressure operating range determined by the remanufacturer or other person who stores or treats the hazardous secondary material based on container manufacturer recommendations, applicable regulations, fire protection and prevention codes, standard engineering codes and practices, or other requirements for the safe handling of flammable, ignitable, explosive, reactive, or hazardous materials. Examples of normal operating conditions that may require these devices to open are during those times when the internal pressure of the container exceeds the

internal pressure operating range for the container as a result of loading operations or diurnal ambient temperature fluctuations.

(e) Opening of a "safety device," as defined in rule 3745-51-781 of the Administrative Code, is allowed at any time conditions require doing so to avoid an unsafe condition.

(4) The remanufacturer or other person who stores or treats the hazardous secondary material using containers with "Container Level 2" controls shall inspect the containers and their covers and closure devices as follows:

(a) In the case when a hazardous secondary material already is in the container at the time the remanufacturer or other person who stores or treats the hazardous secondary material first accepts possession of the container at the facility and the container is not emptied within twenty-four hours after the container is accepted at the facility (i.e., is not an empty hazardous secondary material container), the remanufacturer or other person who stores or treats the hazardous secondary material shall visually inspect the container and the container's cover and closure devices to check for visible cracks, holes, gaps, or other open spaces into the interior of the container when the cover and closure devices are secured in the closed position. The container visual inspection shall be conducted on or before the date that the container is accepted at the facility (i.e., the date the container becomes subject to the container standards in rules 3745-51-780 to 3745-51-789 of the Administrative Code).

(b) In the case when a container used for managing hazardous secondary material remains at the facility for a period of one year or more, the remanufacturer or other person who stores or treats the hazardous secondary material shall visually inspect the container and the container's cover and closure devices initially and thereafter, at least once every twelve months, to check for visible cracks, holes, gaps, or other open spaces into the interior of the container when the cover and closure devices are secured in the closed position. If a defect is detected, the remanufacturer or other person who stores or treats the hazardous secondary material shall repair the defect in accordance with the requirements of paragraph (D)(4)(c) of this rule.

(c) When a defect is detected for the container, cover, or closure devices, the remanufacturer or other person who stores or treats the hazardous secondary material shall make first efforts at repair of the defect no later than twenty-four hours after detection, and repair shall be completed as soon as possible but no later than five calendar days after detection. If

repair of a defect cannot be completed within five calendar days, then the hazardous secondary material shall be removed from the container and the container shall not be used to manage hazardous secondary material until the defect is repaired.

(E) "Container Level 3" standards.

(1) A container using "Container Level 3" controls is one of the following:

(a) A container that is vented directly through a closed-vent system to a control device in accordance with the requirements of paragraph (E)(2)(b) of this rule.

(b) A container that is vented inside an enclosure which is exhausted through a closed-vent system to a control device in accordance with the requirements of paragraphs (E)(2)(a) and (E)(2)(b) of this rule.

(2) The remanufacturer or other person who stores or treats the hazardous secondary material shall meet the following requirements, as applicable to the type of air emission control equipment selected by the remanufacturer or other person who stores or treats the hazardous secondary material:

(a) The container enclosure shall be designed and operated in accordance with the criteria for a permanent total enclosure as specified in "Procedure T- Criteria for and Verification of a Permanent or Temporary Total Enclosure" under 40 CFR 52.741 appendix B. The enclosure may have permanent or temporary openings to allow worker access; passage of containers through the enclosure by conveyor or other mechanical means; entry of permanent mechanical or electrical equipment; or direct airflow into the enclosure. The remanufacturer or other person who stores or treats the hazardous secondary material shall perform the verification procedure for the enclosure as specified in section 5.0 to "Procedure T- Criteria for and Verification of a Permanent or Temporary Total Enclosure" initially when the enclosure is first installed and, thereafter, annually.

(b) The closed-vent system and control device shall be designed and operated in accordance with the requirements of rule 3745-51-787 of the Administrative Code.

(3) "Safety devices," as defined in rule 3745-51-781 of the Administrative Code, may be installed and operated as necessary on any container, enclosure, closed-vent

system, or control device used to comply with the requirements of paragraph (E)(1) of this rule.

- (4) Remanufacturers or other persons who store or treat the hazardous secondary material using "Container Level 3" controls in accordance with rules 3745-51-780 to 3745-51-789 of the Administrative Code shall inspect and monitor the closed-vent systems and control devices as specified in rule 3745-51-787 of the Administrative Code.
 - (5) Remanufacturers or other persons who store or treat the hazardous secondary material that use "Container Level 3" controls in accordance with rules 3745-51-780 to 3745-51-789 of the Administrative Code shall prepare and maintain the records specified in paragraph (D) of rule 3745-51-789 of the Administrative Code.
 - (6) Transfer of hazardous secondary material in or out of a container using "Container Level 3" controls shall be conducted in such a manner as to minimize exposure of the hazardous secondary material to the atmosphere, to the extent practical, considering the physical properties of the hazardous secondary material and good engineering and safety practices for handling flammable, ignitable, explosive, reactive, or other hazardous materials. Examples of container loading procedures that Ohio EPA considers to meet the requirements of this paragraph include using a submerged-fill pipe or other submerged-fill method to load liquids into the container; or a vapor-balancing system or a vapor-recovery system to collect and control the vapors displaced from the container during filling operations; or a fitted opening in the top of a container through which the hazardous secondary material is filled and subsequently purging the transfer line before removing the transfer line from the container opening.
- (F) For the purpose of compliance with paragraph (C)(1)(a) or (D)(1)(a) of this rule, containers shall be used that meet the applicable U.S. DOT regulations on packaging hazardous materials for transportation as follows:
- (1) The container meets the applicable requirements specified in 49 CFR Part 178 or 49 Part 179.
 - (2) Hazardous secondary material is managed in the container in accordance with the applicable requirements specified in 49 CFR Part 107 subpart B and 49 CFR Part 172, Part 173, and Part 180.
 - (3) For the purpose of complying with rules 3745-51-780 to 3745-51-789 of the Administrative Code, no exceptions to the 49 CFR Part 178 or 49 CFR Part 179 regulations are allowed.

(G) To determine compliance with the no detectable organic emissions requirement of paragraph (D)(1)(b) of this rule, the procedure specified in paragraph (D) of rule 3745-51-783 of the Administrative Code shall be used.

(1) Each potential leak interface (i.e., a location where organic vapor leakage could occur) on the container, the container's cover, and associated closure devices, as applicable to the container, shall be checked. Potential leak interfaces that are associated with containers include, but are not limited to, the interface of the cover rim and the container wall; the periphery of any opening on the container or container cover and the cover's associated closure device; and the sealing seat interface on a spring-loaded pressure-relief valve.

(2) The test shall be performed when the container is filled with a material having a volatile organic concentration representative of the range of volatile organic concentrations for the hazardous secondary materials expected to be managed in this type of container. During the test, the container cover and closure devices shall be secured in the closed position.

(H) Procedure for determining a container to be vapor-tight using method 27 of 40 CFR Part 60 appendix A for the purpose of complying with paragraph (D)(1)(c) of this rule.

(1) The test shall be performed in accordance with method 27 of 40 CFR Part 60 appendix A.

(2) A pressure measurement device shall be used that has a precision of plus or minus 2.5 millimeters (mm) water and that is capable of measuring above the pressure at which the container is to be tested for vapor tightness.

(3) If the test results determined by method 27 indicate that the container sustains a pressure change less than or equal to seven hundred fifty Pascals within five minutes after the container is pressurized to a minimum of four thousand five hundred Pascals, then the container is determined to be vapor-tight.

[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."]

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3745-51-787**Closed-vent systems and control devices - tanks and containers.**

(A) This rule applies to each closed-vent system and control device installed and operated by the remanufacturer or other person who stores or treats the hazardous secondary material to control air emissions in accordance with standards of rules 3745-51-780 to 3745-51-789 of the Administrative Code.

(B) The closed-vent system shall meet the following requirements:

(1) The closed-vent system shall route the gases, vapors, and fumes emitted from the hazardous secondary material in the hazardous secondary material management unit to a control device that meets the requirements specified in paragraph (C) of this rule.

(2) The closed-vent system shall be designed and operated in accordance with the requirements specified in paragraph (K) of rule 3745-51-733 of the Administrative Code.

(3) In the case when the closed-vent system includes bypass devices that could be used to divert the gas or vapor stream to the atmosphere before entering the control device, each bypass device shall be equipped with either a flow indicator as specified in paragraph (B)(3)(a) of this rule or a seal or locking device as specified in paragraph (B)(3)(b) of this rule. For the purpose of complying with this paragraph, low leg drains, high point bleeds, analyzer vents, open-ended valves or lines, spring loaded pressure relief valves, and other fittings used for safety purposes are not considered to be bypass devices.

(a) If a flow indicator is used to comply with paragraph (B)(3) of this rule, the indicator shall be installed at the inlet to the bypass line used to divert gases and vapors from the closed-vent system to the atmosphere at a point upstream of the control device inlet. For this paragraph, a flow indicator means a device which indicates the presence of either gas or vapor flow in the bypass line.

(b) If a seal or locking device is used to comply with paragraph (B)(3) of this rule, the device shall be placed on the mechanism by which the bypass device position is controlled (e.g., valve handle, damper lever) when the bypass device is in the closed position such that the bypass device cannot be opened without breaking the seal or removing the lock. Examples of such devices include, but are not limited to, a car-seal or a lock-and-key configuration valve. The remanufacturer or other person who stores or treats the hazardous secondary material shall visually inspect the seal or closure mechanism at least once every month to verify that the bypass mechanism is maintained in the closed position.

(4) The closed-vent system shall be inspected and monitored by the remanufacturer or other person who stores or treats the hazardous secondary material in accordance with the procedure specified in paragraph (L) of rule 3745-51-733 of the Administrative Code.

(C) The control device shall meet the following requirements:

(1) The control device shall be one of the following devices:

(a) A control device designed and operated to reduce the total organic content of the inlet vapor stream vented to the control device by at least ninety-five per cent by weight;

(b) An enclosed combustion device designed and operated in accordance with the requirements of paragraph (C) of rule 3745-51-733 of the Administrative Code; or

(c) A flare designed and operated in accordance with the requirements of paragraph (D) of rule 3745-51-733 of the Administrative Code.

(2) The remanufacturer or other person who stores or treats the hazardous secondary material who elects to use a closed-vent system and control device to comply with the requirements of this rule shall comply with the requirements specified in paragraphs (C)(2)(a) to (C)(2)(f) of this rule.

(a) Periods of planned routine maintenance of the control device, during which the control device does not meet the specifications of paragraph (C)(1)(a), (C)(1)(b), or (C)(1)(c) of this rule, as applicable, shall not exceed two hundred forty hours per year.

(b) The specifications and requirements in paragraphs (C)(1)(a) to (C)(1)(c) of this rule for control devices do not apply during periods of planned routine maintenance.

(c) The specifications and requirements in paragraphs (C)(1)(a) to (C)(1)(c) of this rule for control devices do not apply during a control device system malfunction.

(d) The remanufacturer or other person who stores or treats the hazardous secondary material shall demonstrate compliance with the requirements of paragraph (C)(2)(a) of this rule (i.e., planned routine maintenance of a control device, during which the control device does not meet the specifications of paragraph (C)(1)(a), (C)(1)(b), or (C)(1)(c) of this rule, as applicable, shall not exceed two hundred forty hours per year)

by recording the information specified in paragraph (E)(1)(e) of rule 3745-51-789 of the Administrative Code.

- (e) The remanufacturer or other person who stores or treats the hazardous secondary material shall correct control device system malfunctions as soon as practicable after their occurrence in order to minimize excess emissions of air pollutants.
- (f) The remanufacturer or other person who stores or treats the hazardous secondary material shall operate the closed-vent system such that gases, vapors, or fumes are not actively vented to the control device during periods of planned maintenance or control device system malfunction (i.e., periods when the control device is not operating or not operating normally) except in cases when it is necessary to vent the gases, vapors, or fumes to avoid an unsafe condition or to implement malfunction corrective actions or planned maintenance actions.
- (3) The remanufacturer or other person who stores or treats the hazardous secondary material using a carbon adsorption system to comply with paragraph (C)(1) of this rule shall operate and maintain the control device in accordance with the following requirements:

 - (a) After the initial startup of the control device, all activated carbon in the control device shall be replaced with fresh carbon on a regular basis in accordance with the requirements of paragraph (G) or (H) of rule 3745-51-733 of the Administrative Code.
 - (b) All carbon that is hazardous waste and that is removed from the control device shall be managed in accordance with the requirements of paragraph (N) of rule 3745-51-733 of the Administrative Code, regardless of the average volatile organic concentration of the carbon.
- (4) A remanufacturer or other person who stores or treats the hazardous secondary material using a control device other than a thermal vapor incinerator, flare, boiler, process heater, condenser, or carbon adsorption system to comply with paragraph (C)(1) of this rule shall operate and maintain the control device in accordance with the requirements of paragraph (J) of rule 3745-51-733 of the Administrative Code.
- (5) The remanufacturer or other person who stores or treats the hazardous secondary material shall demonstrate that a control device achieves the performance requirements of paragraph (C)(1) of this rule as follows:

- (a) A remanufacturer or other person who stores or treats the hazardous secondary material shall demonstrate using either a performance test as specified in paragraph (C)(5)(c) of this rule or a design analysis as specified in paragraph (C)(5)(d) of this rule the performance of each control device except for the following:
- (i) A flare;
 - (ii) A boiler or process heater with a design heat input capacity of forty-four megawatts or greater;
 - (iii) A boiler or process heater into which the vent stream is introduced with the primary fuel;
- (b) A remanufacturer or other person who stores or treats the hazardous secondary material shall demonstrate the performance of each flare in accordance with the requirements specified in paragraph (E) of rule 3745-51-733 of the Administrative Code.
- (c) For a performance test conducted to meet the requirements of paragraph (C)(5)(a) of this rule, the remanufacturer or other person who stores or treats the hazardous secondary material shall use the test methods and procedures specified in paragraphs (C)(1) to (C)(4) of rule 3745-51-734 of the Administrative Code.
- (d) For a design analysis conducted to meet the requirements of paragraph (C)(5)(a) of this rule, the design analysis shall meet the requirements specified in paragraph (B)(4)(c) of rule 3745-51-753 of the Administrative Code.
- (e) The remanufacturer or other person who stores or treats the hazardous secondary material shall demonstrate that a carbon adsorption system achieves the performance requirements of paragraph (C)(1) of this rule based on the total quantity of organics vented to the atmosphere from all carbon adsorption system equipment that is used for organic adsorption, organic desorption or carbon regeneration, organic recovery, and carbon disposal.
- (6) If the remanufacturer or other person who stores or treats the hazardous secondary material and the director do not agree on a demonstration of control device performance using a design analysis then the disagreement shall be resolved using the results of a performance test performed by the remanufacturer or other person who stores or treats the hazardous secondary material in accordance with

the requirements of paragraph (C)(5)(c) of this rule. The director may choose to have an authorized representative observe the performance test.

- (7) The closed-vent system and control device shall be inspected and monitored by the remanufacture or other person who stores or treats the hazardous secondary material in accordance with the procedures specified in paragraphs (F)(2) and (L) of rule 3745-51-733 of the Administrative Code. The readings from each monitoring device required by paragraph (F)(2) of rule 3745-51-733 of the Administrative Code shall be inspected at least once each operating day to check control device operation. Any necessary corrective measures shall be immediately implemented to ensure the control device is operated in compliance with the requirements of this rule.

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3745-51-788**Inspection and monitoring requirements - tanks and containers.**

- (A) The remanufacturer or other person who stores or treats the hazardous secondary material shall inspect and monitor air emission control equipment used to comply with rules 3745-51-780 to 3745-51-789 of the Administrative Code in accordance with the applicable requirements specified in rules 3745-51-784 to 3745-51-787 of the Administrative Code.
- (B) The remanufacture or other person who stores or treats the hazardous secondary material shall develop and implement a written plan and schedule to perform the inspections and monitoring required by paragraph (A) of this rule. The remanufacturer or other person who stores or treats the hazardous secondary material shall keep the plan and schedule at the facility.

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3745-51-789**Recordkeeping requirements - tanks and containers.**

- (A) Each remanufacturer or other person who stores or treats the hazardous secondary material subject to requirements of rules 3745-51-780 to 3745-51-789 of the Administrative Code shall record and maintain the information specified in paragraphs (B) to (J) of this rule, as applicable to the facility. Except for air emission control equipment design documentation and information required by paragraphs (I) and (J) of this rule, records required by this shall be maintained at the facility for a minimum of three years. Air emission control equipment design documentation shall be maintained at the facility until the air emission control equipment is replaced or otherwise no longer in service. Information required by paragraphs (I) and (J) of this rule shall be maintained at the facility for as long as the hazardous secondary material management unit is not using air emission controls specified in rules 3745-51-784 to 3745-51-787 of the Administrative Code in accordance with the conditions specified in paragraph (B)(7) or (D) of rule 3745-51-780 of the Administrative Code, respectively.
- (B) The remanufacturer or other person who stores or treats the hazardous secondary material using a tank with air emission controls in accordance with the requirements of rule 3745-51-784 of the Administrative Code shall prepare and maintain records for the tank that include the following information:
- (1) For each tank using air emission controls in accordance with the requirements of rule 3745-51-784 of the Administrative Code, the remanufacturer or other person who stores or treats the hazardous secondary material shall record:
- (a) A tank identification number (or other unique identification description as selected by the remanufacturer or other person who stores or treats the hazardous secondary material).
- (b) A record for each inspection required by rule 3745-51-784 of the Administrative Code that includes the following information:
- (i) Date inspection was conducted.
- (ii) For each defect detected during the inspection, the location of the defect, a description of the defect, the date of detection, and corrective action taken to repair the defect. In the event that repair of the defect is delayed in accordance with the requirements of rule 3745-51-784 of the Administrative Code, the remanufacturer or other person who stores or treats the hazardous secondary material shall also record the reason for the delay and the date that completion of repair of the defect is expected.

(2) In addition to the information required by paragraph (B)(1) of this rule, the remanufacturer or other person who stores or treats the hazardous secondary material shall record the following information, as applicable to the tank:

(a) The remanufacturer or other person who stores or treats the hazardous secondary material using a fixed roof to comply with the "Tank Level 1" control requirements specified in paragraph (C) of rule 3745-51-784 of the Administrative Code shall prepare and maintain records for each determination for the maximum organic vapor pressure of the hazardous secondary material in the tank performed in accordance with the requirements of paragraph (C) of rule 3745-51-784 of the Administrative Code. The records shall include the date and time the samples were collected, the analysis method used, and the analysis results.

(b) The remanufacturer or other person who stores or treats the hazardous secondary material using an internal floating roof to comply with the "Tank Level 2" control requirements specified in paragraph (E) of rule 3745-51-784 of the Administrative Code shall prepare and maintain documentation describing the floating roof design.

(c) Remanufacturer or other persons who store or treat the hazardous secondary material using an external floating roof to comply with the "Tank Level 2" control requirements specified in paragraph (F) of rule 3745-51-784 of the Administrative Code shall prepare and maintain the following records:

(i) Documentation describing the floating roof design and the dimensions of the tank.

(ii) Records for each seal gap inspection required by paragraph (F)(3) of rule 3745-51-784 of the Administrative Code describing the results of the seal gap measurements. The records shall include the date that the measurements were performed, the raw data obtained for the measurements, and the calculations of the total gap surface area. In the event that the seal gap measurements do not conform to the specifications in paragraph (F)(1) of rule 3745-51-784 of the Administrative Code, the records shall include a description of the repairs that were made, the date the repairs were made, and the date the tank was emptied, if necessary.

(d) Each remanufacturer or other person who stores or treats the hazardous secondary material using an enclosure to comply with the "Tank Level 2"

control requirements specified in paragraph (I) of rule 3745-51-784 of the Administrative Code shall prepare and maintain the following records:

(i) Records for the most recent set of calculations and measurements performed by the remanufacturer or other person stores or treats the hazardous secondary material to verify that the enclosure meets the criteria of a permanent total enclosure as specified in "Procedure T- Criteria for and Verification of a Permanent or Temporary Total Enclosure" under 40 CFR 52.741 appendix B.

(ii) Records required for the closed-vent system and control device in accordance with the requirements of paragraph (E) of this rule.

(C) [Reserved.]

(D) The remanufacturer or other person who stores or treats the hazardous secondary material using containers with "Container Level 3" air emission controls in accordance with the requirements of rule 3745-51-786 of the Administrative Code shall prepare and maintain records that include the following information:

(1) Records for the most recent set of calculations and measurements performed by the remanufacturer or other person who stores or treats the hazardous secondary material to verify that the enclosure meets the criteria of a permanent total enclosure as specified in "Procedure T- Criteria for and Verification of a Permanent or Temporary Total Enclosure" under 40 CFR 52.741 appendix B.

(2) Records required for the closed-vent system and control device in accordance with the requirements of paragraph (E) of this rule.

(E) The remanufacturer or other person who stores or treats the hazardous secondary material using a closed-vent system and control device in accordance with the requirements of rule 3745-51-787 of the Administrative Code shall prepare and maintain records that include the following information:

(1) Documentation for the closed-vent system and control device that includes:

(a) Certification that is signed and dated by the remanufacturer or other person who stores or treats the hazardous secondary material stating that the control device is designed to operate at the performance level documented by a design analysis as specified in paragraph (E)(1)(b) of this rule or by performance tests as specified in paragraph (E)(1)(c) of this rule when the tank or container is or would be operating at capacity or the highest level reasonably expected to occur.

- (b) If a design analysis is used, then design documentation as specified in paragraph (B)(4) of rule 3745-51-735 of the Administrative Code. The documentation shall include information prepared by the remanufacturer or other person who stores or treats the hazardous secondary material or provided by the control device manufacturer or vendor that describes the control device design in accordance with paragraph (B)(4)(c) of rule 3745-51-735 of the Administrative Code and certification by the remanufacturer or other person who stores or treats the hazardous secondary material that the control equipment meets the applicable specifications.
- (c) If performance tests are used, then a performance test plan as specified in paragraph (B)(3) of rule 3745-51-735 of the Administrative Code and all test results.
- (d) Information as required by paragraphs (C)(1) to (C)(2) of rule 3745-51-735 of the Administrative Code, as applicable.
- (e) A remanufacturer or other person who stores or treats the hazardous secondary material shall record, on a semiannual basis, the information specified in paragraphs (E)(1)(e)(i) and (E)(1)(e)(ii) of this rule for those planned routine maintenance operations that would require the control device not to meet the requirements of paragraph (C)(1)(a), (C)(1)(b), or (C)(1)(c) of rule 3745-51-787 of the Administrative Code, as applicable.
- (i) A description of the planned routine maintenance that is anticipated to be performed for the control device during the next six-month period. This description shall include the type of maintenance necessary, planned frequency of maintenance, and lengths of maintenance periods.
- (ii) A description of the planned routine maintenance that was performed for the control device during the previous six-month period. This description shall include the type of maintenance performed and the total number of hours during those six months that the control device did not meet the requirements of paragraph (C)(1)(a), (C)(1)(b), or (C)(1)(c) of rule 3745-51-787 of the Administrative Code as applicable, due to planned routine maintenance.
- (f) A remanufacturer or other person who stores or treats the hazardous secondary material shall record the information specified in paragraphs (E)(1)(f)(i) to (E)(1)(f)(iii) of this rule for those unexpected control device system malfunctions that would require the control device not to meet

the requirements of paragraph (C)(1)(a), (C)(1)(b), or (C)(1)(c) of rule 3745-51-787 of the Administrative Code, as applicable.

(i) The occurrence and duration of each malfunction of the control device system.

(ii) The duration of each period during a malfunction when gases, vapors, or fumes are vented from the hazardous secondary material management unit through the closed-vent system to the control device while the control device is not properly functioning.

(iii) Actions taken during periods of malfunction to restore a malfunctioning control device to control device's normal or usual manner of operation.

(g) Records of the management of carbon removed from a carbon adsorption system conducted in accordance with paragraph (C)(3)(b) of rule 3745-51-787 of the Administrative Code.

(F)

(1) The remanufacturer or other person who stores or treats the hazardous secondary material using a tank or container exempted under the hazardous secondary material organic concentration conditions specified in paragraph (C)(1) or paragraphs (C)(2)(a) to (C)(2)(f) of rule 3745-51-782 of the Administrative Code, shall prepare and maintain at the facility records documenting the information used for each material determination (e.g., test results, measurements, calculations, and other documentation). If analysis results for material samples are used for the material determination, then the remanufacturer or other person who stores or treats the hazardous secondary material shall record the date, time, and location that each material sample is collected in accordance with applicable requirements of rule 3745-51-783 of the Administrative Code.

(2) [Reserved.]

(G) A remanufacturer or other person who stores or treats the hazardous secondary material designating a cover as "unsafe to inspect and monitor" pursuant to paragraph (L) of rule 3745-51-784 or paragraph (G) of rule 3745-51-785 of the Administrative Code shall record and keep at facility the identification numbers for hazardous secondary material management units with covers that are designated as "unsafe to inspect and monitor," the explanation for each cover stating why the cover is unsafe to inspect and monitor, and the plan and schedule for inspecting and monitoring each cover.

(H) The remanufacturer or other person who stores or treats the hazardous secondary material that is subject to rules 3745-51-780 to 3745-51-789 of the Administrative Code and to the control device standards in 40 CFR Part 60 subpart VV, or 40 CFR Part 61 subpart V, may elect to demonstrate compliance with the applicable provisions of rules 3745-51-780 to 3745-51-789 of the Administrative Code by documentation either pursuant to rules 3745-51-780 to 3745-51-789 of the Administrative Code, or pursuant to 40 CFR Part 60 subpart VV or 40 CFR Part 61 subpart V, to the extent that the documentation required by 40 CFR Part 60 or 40 CFR Part 61 duplicates the documentation required by this rule.

[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."]

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