3745-27-01 Definitions.

For the purposes of this chapter, the terms are defined as follows:

(A)

(1) "Airport" means any airport certified by the federal aviation administration and open to the public without prior permission and without restrictions within the physical capabilities of the available facilities.

(2) "Alteration" means a change from the requirements specified in the facility's authorizing document that is at least equivalent to rule requirements and requires written concurrence by Ohio EPA. An alteration is not a "modification."

[Comment: If the change is not equivalent to rule requirements, approval through a variance or exemption would be necessary.]

(3) "Applicant" means any person who has applied for a registration certificate, permit to install, an alternative infectious waste treatment technology approval, or an operating license in accordance with Chapter 3745-27, 3745-29, 3745-30, or 3745-37 of the Administrative Code.

(4) "Aquifer" means consolidated or unconsolidated geological units, formations, or series of units or formations that are hydraulically interconnected and that have the ability to receive, store, transmit, and yield water to wells or springs.

(5) "Aquifer system" means one or more geological units or formations that are wholly or partially saturated with water and are able to receive, store, transmit, and yield significant amounts of water to wells or springs.

(6) "Assets" means all existing and all probable future economic benefits obtained or controlled by a particular entity.

(7) "Authorized maximum daily waste receipt" means the maximum amount of solid waste a solid waste disposal facility may receive at the gate in any calendar day. The waste receipt limit shall be expressed in tons per day. The conversion factor between tons and cubic yards shall be one ton to three cubic yards unless the solid waste is baled, in which case a one-ton to one-cubic-yard conversion factor shall be used.

(B)

(1) "Beneficial use" for the purposes of scrap tires means to use a scrap tire in a manner that results in a commodity for sale or exchange or in any other manner authorized as a beneficial use in accordance with rule 3745-27-78 of the Administrative Code. The use of a scrap tire at a scrap tire recovery facility is not a beneficial use of scrap tires. Beneficial use does not apply to products manufactured from scrap tires and sold to a customer, including tire derived fuel.

(2) "Biomass fuels" means fuels from any plant derived organic matter available on a renewable basis including the following:

(a) Agricultural crop wastes and residues.

(b) Agricultural food and feed crops.

(c) Aquatic plants.

(d) Dedicated energy crops and trees.

(e) Forestry residues and sawdust.

(f) Refuse derived fuel consisting of waste paper, cardboard, wood waste, yard waste, or animal waste.

(3) "Bird hazard" means an increase in the likelihood of bird and aircraft collisions that may cause damage to the aircraft or injury to the occupants of the aircraft.

(4) "Board of directors of a joint district" means a collective body of the boards of county commissioners of the counties establishing a joint solid waste management district as specified in section 343.01 of the Revised Code.

(5) "Board of health" means the board of health of a city or general health district, or the authority having the duties of a board of health in any city as authorized by section 3709.05 of the Revised Code.

(C)

(1) "Commingled yard waste" means yard waste that has been commingled with other solid wastes. Commingled yard waste does include containerized source-separated yard waste including, but not limited to, yard waste in paper or plastic-bags where such bags are commingled with other solid wastes.

(2) "Composting" means the process of biological decomposition of solid wastes under controlled conditions resulting in compost. Controlled conditions include but are not limited to the following:

(a) Adding moisture.

(b) Aerating.

(c) Chipping.

(d) Grinding.

(e) Mixing feedstocks, bulking agents, and additives.

(f) Performing procedures to achieve human pathogen reduction.

(g) Physical turning.

(h) Piling.

(i) Shredding.

(j) Other processing of solid wastes.

(3) "Composting facility" means a site, location, tract of land, installation, or building used for composting of solid waste in accordance with Chapter 3734. of the Revised Code and rules adopted thereunder. The composting facility includes the area of materials placement and any leachate management system structures.

(4) "Current assets" means cash or other assets or resources commonly identified as those that are reasonably expected to be realized in cash or sold or consumed during the normal operating cycle of the business.

(5) "Current corrective measures cost estimate" means the most recent of the estimates prepared in accordance with rule 3745-27-18 of the Administrative Code.

(6) "Current closure cost estimate" means the most recent of the estimates prepared in accordance with rule 3745-27-15, 3745-27-53, 3745-27-61, 3745-27-63, 3745-27-66, or 3745-27-73 of the Administrative Code.

(7) "Current liabilities" means obligations whose liquidation is reasonably expected to require either the use of existing resources properly classifiable as current assets or the creation of other current liabilities.

(8) "Current post-closure care cost estimate" means the most recent of the estimates prepared in accordance with rule 3745-27-16 or 3745-27-73 of the Administrative Code.

(D)

(1) "Daily design input capacity" or "DDIC" means the weight of scrap tires that can be processed at a scrap tire recovery facility per day. The DDIC is expressed in tons and shall be calculated as an averaged daily processing amount for all operating days in a calendar month.

(2) "Developed spring" means any spring that has been permanently modified by the addition of pipes or a collection basin to facilitate the collection and use of the spring water.

(3) "Director" means the director of environmental protection or the director's authorized representative.

(E)

(1) "Establish" or "establishment" of a sanitary landfill facility, infectious waste treatment facility, or scrap tire facility means to construct or install any of the proposed facility components, including the excavation that is related to the construction of a facility or any components thereof. "Establish" or "establishment" does not include clearing and grubbing.

(2) "Execute" means to complete and sign a document acceptable to the director for the purpose of establishing a financial assurance instrument.

(3) "Exemption" means a discretionary action of the director that relieves an applicant from a requirement of Chapter 3734. of the Revised Code or any rule adopted thereunder.

(4) "Existing unit" means any unit of a sanitary landfill facility that is receiving solid waste on or before June 1, 1994, and is a geographically contiguous area within the limits of waste placement of the sanitary landfill facility, as the limits of waste placement existed on June 1, 1994.

(5) "Explosive gas monitoring probe," "monitoring probe," or "probe" means a permanent device where the presence of landfill gas can be repeatedly measured with a direct reading instrument.

(F)

(1) "Face amount" means the total amount the insurer is obligated to pay under the policy.

(2) "Fault" means a fracture along which strata on one side of the fracture have been displaced with respect to strata on the other side of the fracture.

(3) "Final slope" means the slope of a landfill when it has reached final grade and includes but is not limited to the composite cap system, the waste, the composite liner system, and the subsurface.

(4) "Fire break" means the area around individual scrap tire storage piles that is maintained free of combustible and vegetative material. The width of the fire break shall be as specified in the applicable rule of Chapter 3745-27 of the Administrative Code. The fire break may include well-mowed grass if the fire break also includes a gravel or paved fire lane not less than twenty feet wide.

(5) "Foundry sand" has the same meaning as in rule 3745-30-01 of the Administrative Code.

(G) "Ground water" means any water below the surface of the earth in a zone of saturation.

(H)

(1) "Hazardous waste" means hazardous waste as defined in Chapter 3734. of the Revised Code and includes waste that is listed specifically as hazardous waste or exhibits one or more characteristics of hazardous waste as defined in Chapter 3745-51 of the Administrative Code.

(2) "Health commissioner" means the individual occupying the office created by sections 3709.11 and 3709.14 of the Revised Code, or the health commissioner's authorized representative.

(3) "Health district" means a city or general health district as created by or under the authority of Chapter 3709. of the Revised Code.

(4) "Holocene" means the most recent epoch of the Quaternary period extending from the end of the Pleistocene to the present.

(5) "Household hazardous waste" means solid waste originally generated by individual households that is listed specifically as hazardous waste or exhibits one or more characteristics of hazardous waste as defined in rule 3745-51-03 of the Administrative Code. Household hazardous waste is excluded from regulation as a hazardous waste pursuant to paragraph (B)(1) of rule 3745-51-04 of the Administrative Code.

(I)

(1) "Incinerator" means any equipment, machine, device, article, contrivance, structure, or part of a structure used to burn solid or infectious wastes to ash.

(2) "Independently audited" refers to an audit performed by an independent certified public accountant in accordance with generally accepted accounting standards, or for a publicly-owned facility, an equivalent comprehensive audit performed by the auditor of the state of Ohio pursuant to Chapter 117. of the Revised Code.

(3) "Industrial solid waste" has the same meaning as in rule 3745-29-01 of the Administrative Code.

(4) "Industrial solid waste landfill facility" has the same meaning as in rule 3745-29-01 of the Administrative Code.

(5) "Infectious agent" means a type of microorganism, pathogen, virus, or proteinaceous infectious particle that can cause or significantly contribute to disease in or death of human beings.

(6) "Infectious wastes" means any wastes or combination of wastes that include the following:

(a) Cultures and stocks of infectious agents and associated biologicals, human blood and blood products, and substances that were or are likely to have been exposed to or contaminated with or are likely to transmit an infectious agent or zoonotic agent, including the following:

(b) Human blood and blood products.

(c) Substances that were or are likely to have been exposed to or contaminated with or are likely to transmit an infectious agent or zoonotic agent, including the following:

(i) Laboratory wastes.

(ii) Pathological wastes.

(iii) Animal blood and blood products.

(iv) Animal carcasses and parts.

(v) Waste materials from the rooms of humans or the enclosures of animals that have been isolated because of a diagnosed communicable disease that are likely to transmit infectious or zoonotic agents. Waste materials from the rooms of humans do not include any wastes of patients who have been placed on blood and body fluid precautions under the "Universal Precaution System" established by the centers for disease control in the public health service of the United States department of health and human services, unless specific wastes generated under the universal precautions system have been identified as infectious wastes under paragraph (I)(6)(c)(vii) of this rule.

(vi) Sharp wastes used in the treatment, diagnosis, or inoculation of human beings or animals.

(vii) Any other waste materials generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals, that the director of health, by rules adopted in accordance with Chapter 119. of the Revised Code, identifies as infectious wastes after determining that the wastes present a substantial threat to human health when improperly managed because they are contaminated with, or are likely to be contaminated with, infectious agents.

(d) Any other waste materials the generator designates as infectious waste.

Patient care waste such as bandages, disposable gowns, or permeable materials that are lightly soiled with blood or other body fluids are not considered an infectious waste unless those wastes are soiled to the extent that the generator of the wastes determines that the materials should be managed as infectious wastes.

(7) "Infectious waste handling area" means any area where infectious wastes are stored, loaded, unloaded, prepared for treatment, or treated. Infectious waste handling areas also include areas where vehicles or containers are decontaminated, areas where transportation of infectious wastes within the facility premises occurs, and areas where treated infectious wastes are unloaded, stored, and loaded.

(8) "Infectious waste treatment unit" or "treatment unit" means the apparatus responsible for the attainment of

the performance standard for treatment and for the reduction in microorganisms that is part of the treatment process. A free standing shredder or grinder is not considered a treatment unit.

[Comment: If the treatment process is contained within a single~~,~~ enclosed piece of equipment, then the treatment unit and treatment process are considered one and the same.]

(9) "Interim slope" means the slope of a landfill as a result of daily filling or when a phase, cell, or unit has reached its limits and includes but is not limited to daily cover, intermediate cover, transitional cover, waste, the composite liner system, and the subsurface.

(10) "Internal slope" means the slope as excavated or constructed and includes but is not limited to the leachate collection layer, protective material, select waste, composite liner system, and the subsurface.

(J) [Reserved.]

(K) [Reserved.]

(L)

(1) "Leachate" means liquid that has come in contact with or been released from solid waste.

(2) "Legitimate recycling facility" means an engineered facility or site where recycling of material other than scrap tires is the primary objective of the facility.

For the purposes of Chapters 3745-27 and 3745-37 of the Administrative Code, legitimate recycling facilities are either of the following:

(a) Facilities that accept only source separated recyclables, except scrap tires, or commingled recyclables that are currently recoverable utilizing existing technology.

(b) Facilities that meet all of the following:

(i) Accept mixed or source separated solid waste streams.

(ii) Recovers for recycling or beneficial use not less than sixty per cent of the weight of solid wastes brought to the facility each month (as averaged monthly) for not fewer than eight months in each calendar year.

(iii) Dispose of not more than forty per cent of the total weight of solid wastes brought to the facility each month (as averaged monthly) for not fewer than eight months in each calendar year.

For purposes of Chapters 3745-27 and 3745-37 of the Administrative Code, legitimate recycling facility does not include any facility identified as a solid waste disposal facility as "solid waste" is defined in this rule, nor does it include any facility identified as a scrap tire collection, storage, monofill, monocell, or recovery facility or any premises at which the beneficial use of scrap tires occurs.

(3) "Liabilities" means probable future sacrifices of economic benefits arising from present obligations to transfer assets or provide services to other entities in the future as a result of past transactions or events.

(4) "Limestone quarry" means an excavation resulting from a mining operation where limestone is the principal material excavated for commercial sale or use in another location. This term does not include

excavations of limestone resulting from the construction of the sanitary landfill facility.

(5) "Limits of waste placement" means the horizontal and vertical boundaries of a sanitary landfill facility within which the owner or operator has been authorized to dispose of solid waste.

(6) "Lower explosive limit" means the lowest per cent by volume of a mixture of explosive gases in air that will propagate a flame at twenty-five degrees Celsius and atmospheric pressure.

(M)

(1) "Maximum horizontal acceleration in lithified earth material" means the maximum expected horizontal acceleration depicted on a seismic hazard map, with a ninety per cent or greater probability that the acceleration will not be exceeded in two hundred fifty years, or the maximum expected horizontal acceleration based on a site-specific seismic risk assessment.

(2) "Modification" has the same meaning as in rule 3745-27-02 of the Administrative Code.

(3) "Monocell" means a discrete volume of solid waste, which is provided isolation from other solid wastes, where a segregated waste stream is exclusively disposed within the limits of waste placement of a sanitary landfill facility.

(4) "Monofill" means a specialized sanitary landfill facility where a single segregated waste stream is exclusively disposed.

(5) "Municipal solid waste" means a type of solid waste generated from community, commercial, and agricultural operations, including but not limited to the following:

(a) Solid waste generated by community operations including wastes derived from single and multiple household residences, hotels, motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas.

(b) Solid waste generated by commercial operations including stores, offices, restaurants, warehouses, and other non-manufacturing activities.

(c) Solid waste generated from agricultural operations including single-family and commercial farms, greenhouses, and nurseries.

(d) Sludge from municipal, commercial, or industrial waste water treatment plants, water treatment plants, and air pollution control facilities that is co-disposed with wastes specified in paragraph (M)(5)(a), (M)(5)(b), (M)(5)(c), or (M)(5)(e) of this rule in a sanitary landfill facility.

(e) Fly ash and bottom ash generated from the incineration of municipal solid waste, provided the fly ash and bottom ash are not regulated as hazardous wastes.

(N)

(1) "Net working capital" means current assets minus current liabilities.

(2) "Net worth" means total assets minus total liabilities and is equivalent to owner's equity.

(3) "New unit" means any unit of a sanitary landfill facility that did not receive solid waste prior to June 1,

1994, and that has not been designated an existing unit by the owner or operator. A new unit may be contiguous or noncontiguous.

(4) "Nonputrescible solid wastes" means solid wastes that do not generate explosive gases during decomposition, do not readily biodegrade, and do not cause odors.

(5) "Nuisance" means anything that is injurious to human health or offensive to the senses; interferes with the comfortable enjoyment of life or property; and affects a community, neighborhood, or any considerable number of persons, although the extent of annoyance or damage inflicted upon individual persons may be unequal.

(O)

(1) "Occupied structure" means an enclosed structure where one or more human beings may be present, except those structures that are open to natural free air circulation such that an explosive gas hazard is minimized.

(2) "Open burning" means the burning of solid wastes in an open area or burning of solid wastes in a type of chamber or vessel that is not approved or authorized in rules adopted by the director under section 3734.02 of the Revised Code or, if the solid wastes consist of scrap tires, in rules adopted by the director under section 3734.73 of the Revised Code, or the burning of treated or untreated infectious wastes in an open area or vessel that is not approved in rules adopted by the director under section 3734.021 of the Revised Code.

(3) "Open dump" means a site where solid wastes or untreated infectious wastes have been disposed without a license.

(4) "Open dumping" means the following:

(a) The deposition of solid wastes, other than scrap tires, into waters of the state, or the final deposition of solid wastes on or into the ground at any place other than a solid waste facility operated in accordance with Chapter 3734. of the Revised Code, and Chapters 3745-27, 3745-29, 3745-30, and 3745-37 of the Administrative Code.

(b) The deposition of solid wastes that consist of scrap tires on or into the following:

(i) Waters of the state.

(ii) The ground at any place other than a scrap tire collection, storage, monofill, monocell, or recovery facility licensed under section 3734.81 of the Revised Code, or at a site or in a manner not specified in division (C)(2), (C)(3), (C)(4), (C)(5), (C)(7), (C)(9), or (C)(10) of section 3734.85 of the Revised Code, or at any licensed solid waste facility if the deposition is not in accordance with Chapters 3745-27 and 3745-37 of the Administrative Code, or at a site or in a manner not in compliance with rule 3745-27-60 of the Administrative Code.

(iii) At any licensed solid waste facility if the deposition is not in accordance with Chapters 3745-27 and 3745-37 of the Administrative Code.

(iv) Buildings, trailers, or other vehicles at locations other than a scrap tire transporter's registered business location, a licensed scrap tire facility, or an unregistered scrap tire facility operating in

accordance with rules 3745-27-60 and 3745-27-61 of the Administrative Code for longer than fourteen days. Scrap tires in trailers or vehicles shall be considered open dumped unless written prior authorization is granted by Ohio EPA that allows the vehicle or trailer to have mechanical repairs that will take longer than fourteen days to complete.

[Comment: An unregistered scrap tire facility operating in accordance with rule 3745-27-61 of the Administrative Code includes trailers pre-positioned in accordance with paragraph (C)(8) of rule 3745-27-56 of the Administrative Code.]

(c) The deposition of untreated or treated infectious wastes into waters of the state, or the final deposition of untreated infectious wastes on or into the ground at any place other than a licensed solid waste facility operated in accordance with Chapter 3734. of the Revised Code, and Chapters 3745-27 and 3745-37 of the Administrative Code.

(5) "Operator" or "facility operator" means the person responsible for the on-site supervision of technical operations and maintenance of a solid or infectious waste facility, or any parts thereof, which may affect the performance of the facility and its potential environmental impact, or any person who has authority to make discretionary decisions concerning the daily operations of the solid or infectious waste facility. "Operator" also means the person responsible for the supervision of technical operations of a scrap tire transportation business.

(6) "Original owner" means the person or business who purchased a new, retread, or used tire for use on a wheel or rim. Original owner does not include anyone who has accepted a tire other than a new or retreaded tire, for the purposes of transportation, collection, storage, processing, or disposal.

(7) "Owner" or "property owner" means the person who holds title to the property on which the solid waste facility, infectious waste treatment facility, or scrap tire transportation business is located.

(P)

(1) "Parent corporation" means a corporation, or the ultimate corporation, that directly owns at least fifty per cent of the voting stock of the corporation which holds a permit or license issued in accordance with section 3734.05 of the Revised Code and Chapter 3745-27, 3745-29, or 3745-30 of the Administrative Code; the latter corporation is deemed a "subsidiary" of the parent corporation.

(2) "Permittee" means a person to whom a permit to install has been issued.

(3) "Person" includes the state, any political subdivision of the state or other state or local body, the United States and any agency or instrumentality thereof, and any legal entity or organization defined as a person under section 1.59 of the Revised Code, or other entity.

(4) "Phase" means a discrete area of a sanitary landfill facility, that has been designated to facilitate the systematic construction, operation, and closure of the sanitary landfill facility. For a sanitary landfill facility, other than an industrial solid waste landfill facility or residual solid waste landfill facility, a phase is a discrete area that is part of a unit.

(5) "Premises" means one of the following:

(a) Geographically contiguous property owned by the same person.

(b) Noncontiguous property that is owned by the same person and connected by a right-of-way that the person controls and to which the public does not have access. Two or more pieces of property that are geographically contiguous and divided by one or more public or private right-of-way or rights-of-way are a single premises.

(6) "Processed tire" or "processed scrap tire" means a scrap tire that has been altered through a mechanical, chemical, thermal, or controlled combustion process so that the resulting material is a marketable product or is suitable for storage or disposal in a scrap tire monocell or monofill facility. Processed tire includes but is not limited to cut, split, and shredded tires. Baled tires are only considered processed tires for the purpose of disposal at a scrap tire monocell or monofill facility. For the purposes of disposal, processed tires are classified in accordance with the following:

(a) Processed tires that are readily identifiable as scrap tires or pieces of scrap tires by visual inspection are considered scrap tires.

(b) Processed tires that are not readily identifiable as scrap tires or pieces of scrap tires by visual inspection when disposed are considered solid waste rather than scrap tires.

(c) Items manufactured from processed tires and scrap tire material that is a by-product of a manufacturing process when disposed are considered solid waste.

(7) "Public water supply well" means any well connected to a public water system as defined by division (A) of section 6109.01 of the Revised Code.

(Q)

(1) "Qualified ground water scientist" means a scientist or engineer who has received a baccalaureate or post-graduate degree in the natural sciences or engineering and has at least five years relevant experience in ground water hydrology or hydrogeology and related fields to enable that individual to make sound professional judgments regarding ground water monitoring, contaminant fate and transport, and corrective measures.

(R)

(1) "Recycling" means converting solid waste that would otherwise be disposed and returning the converted material to commerce as a commodity for use or exchange in an established and legitimate market. Recycling is not reuse, storage, disposal, or transfer.

(2) "Regional aquifer" means the aquifer used as a primary source of water to wells within one mile of the solid waste disposal facility.

(3) "Registrant" means any person to whom a registration has been issued.

(4) "Regulatory floodplain" means an area covered by a one hundred year flood as depicted on a flood insurance rate map published by the federal emergency management agency.

(5) "Residual solid waste" or "residual waste" has the same meaning as in rule 3745-30-01 of the

Administrative Code.

(6) "Residual waste landfill facility" or "residual waste landfill" has the same meaning as in rule 3745-30-01 of the Administrative Code.

(7) "Responsible party" has the same meaning as in section 3734.041 of the Revised Code.

(8) "Rough tire shreds" or "rough shredded scrap tires" means tire shreds or cut tire pieces that have any dimension greater than four inches.

(S)

(1) "Salvaging" means the extracting or removing of materials from the solid waste stream at the working face of a solid waste disposal facility for the intended purpose of recycling or for removal to a salvage facility regulated by Chapter 4737. of the Revised Code and rules promulgated thereunder.

(2) "Sand or gravel pit" means an excavation resulting from a mining operation where the removal of sand or gravel is undertaken for commercial sale or use in another location. This term does not include excavations of sand or gravel resulting from the construction of the sanitary landfill facility.

(3) "Sandstone quarry" means an excavation resulting from a mining operation where sandstone is the principal material excavated for commercial sale or use in another location. This term does not include excavations of sandstone resulting from the construction of a sanitary landfill facility.

(4) "Sanitary landfill facility" or "solid waste landfill" means an engineered facility where the final deposition of solid waste on or into the ground is practiced in accordance with Chapter 3745-27, 3745-29 or 3745-30 as appropriate and 3745-37 of the Administrative Code and includes the units within the limits of waste placement, all ground water monitoring and control system structures, buildings, explosive gas monitoring, control, and extraction system structures, surface water run-on and runoff control structures, sedimentation ponds, liner systems, and leachate management system structures. The sanitary landfill facility includes all portions of the facility described above and those areas within three hundred feet of the limits of waste placement unless an alternate setback is deemed acceptable by the director. If the owner or operator has not obtained approval of a permit to install, which delineates the setback from the limits of waste placement, submitted in accordance with section 3734.05 of the Revised Code, the sanitary landfill facility includes all portions of the facility described above and those areas within three hundred feet of the limits of waste placement unless the property line of the facility is less than three hundred feet from the limits of waste placement, in which case the sanitary landfill facility includes those areas within the property line.

(5) "Scavenging" means the removal by unauthorized personnel of materials from the solid waste stream at waste handling areas of a solid waste disposal facility or solid waste transfer facility.

(6) "Scrap tire" is a type of solid waste and means any unwanted or discarded tire, regardless of size, that has been removed from its original use. "Scrap tire" includes all whole scrap tires and pieces of scrap tires that are readily identifiable as parts of scrap tires by visual inspection.

For purposes of this definition, "unwanted" means the original scrap tire generator, original owner, or manufacturer of the tire no longer wants to use, or is unable to use, the tire for its original purpose, and the tire is discarded. "Discarded" means the original scrap tire generator, original owner, or

manufacturer of the tire has otherwise managed the tire in such a manner that disposal has occurred.

"Scrap tire" does not include the following:

(a) A tire after it has been retreaded or regrooved for resale or reuse, unless it has been declared defective or has been returned to the seller or manufacturer for warranty adjustment.

(b) A tire that is mounted and installed on a vehicle or trailer, or carried on the vehicle or trailer as the spare tire. Trucks with more than four wheels or with different size wheels or tires may carry more than one spare tire.

For purposes of this definition, "installed" means placing the mounted wheel and tire assembly at any of the positions on a vehicle or trailer where a wheel and tire assembly was initially placed on the vehicle or trailer during manufacture, and includes the position normally used for a spare tire or tires.

For purposes of this definition, "mounted" means placing a tire on a wheel rim so that it can be installed on a vehicle. A mounted tire may be a scrap tire unless it is also installed.

(c) Tires from non-motorized vehicles such as bicycles, or tires from small equipment such as lawn mowers, wheelbarrows, etc.

[Comment: Tires from non-motorized vehicles may be recycled, disposed of as scrap tires, or may be disposed of as solid waste.]

(d) At a retreading business, a retreadable casing that has been inspected and individually labeled or marked as suitable for retreading and is stored in an enclosed building or in a manner otherwise authorized by the director.

(e) Tire derived fuel (TDF) or tire derived chips (TDC) as defined in this rule after the TDF or TDC has been transported from the scrap tire recovery facility for use as a fuel or for beneficial use.

(f) Non-pneumatic, hard, pressed tires, such as forklift tires.

(7) "Scrap tire collection facility" means a type of facility for scrap tire storage that meets the following:

(a) Is used for the receipt and storage of whole scrap tires from the public prior to the transportation of the scrap tires to one of the destinations listed in rule 3745-27-65 of the Administrative Code.

(b) Exclusively stores scrap tires in portable containers.

(c) Consists of portable containers where the scrap tires are stored and the aggregate volume of the portable containers does not exceed five thousand cubic feet.

[Comment: If the facility does not meet the above definition for a scrap tire collection facility, then the facility may be a scrap tire storage facility. If the facility includes any equipment for processing (e.g. cutting or shredding equipment) the scrap tires to produce a usable product, then the facility is a scrap tire recovery facility.]

(8) "Scrap tire facility" includes but is not limited to the following:

(a) A scrap tire collection facility, scrap tire storage facility, scrap tire recovery facility, scrap tire monofill facility, scrap tire monocell facility, and scrap tire submergence facility as those terms are defined in this rule.

(b) A scrap tire storage facility.

(c) A scrap tire recovery facility.

(d) A scrap tire monofill facility.

(e) A scrap tire monocell facility.

(9) "Scrap tire generator" means any person or business that generates scrap tires. Scrap tire generator includes the original scrap tire generator and any business that removes tires from vehicles and accepts scrap tires in the normal course of business, including but not limited to tire retail dealers and tire retreaders.

[Comment: A scrap tire generator or original scrap tire generator who stores more than one hundred scrap tires and who does not qualify for one of the exclusions from registration in rule 3745-27-61 or permitting in rule 3745-27-63 of the Administrative Code may also be a scrap tire collection, storage, or recovery facility.]

(10) "Scrap tire handling area" means any area of a scrap tire collection, storage, monocell, monofill, or recovery facility where scrap tires are stored, loaded, unloaded, sorted, baled, shredded, prepared for processing, or otherwise processed. A scrap tire handling area includes the scrap tire storage area but does not include vehicle staging areas, vehicle storage areas, or buildings not used for the processing or storage of scrap tires. Scrap tire handling area also includes that portion of a scrap tire transporter's business location where scrap tires are unloaded, sorted, and loaded.

(11) "Scrap tire monocell facility" means a type of monocell that is used or intended to be used exclusively for the environmentally sound storage or disposal of scrap tires that have been shredded, chipped, or otherwise mechanically processed.

(12) "Scrap tire monofill facility" means a type of monofill that is used or intended to be used exclusively for the environmentally sound storage or disposal of scrap tires that have been shredded, chipped, or otherwise mechanically processed.

(13) "Scrap tire recovery facility" means any site, location, tract of land, installation, or building that is used or intended to be used for the processing of scrap tires for the purpose of extracting or producing usable products, materials, or energy from the scrap tires. Processing includes but is not limited to~~:~~ a controlled combustion process, mechanical process, thermal process, or chemical process that uses whole, split, or shredded scrap tires as a raw material. Scrap tire recovery facility includes any facility that uses the controlled combustion of scrap tires in a manufacturing process to produce process heat or steam or any facility that produces usable heat or electric power through the controlled combustion of scrap tires in combination with another fuel.

(a) "Mobile scrap tire recovery facility" means a type of scrap tire recovery facility owned or operated by a person not otherwise licensed as a class I or class II scrap tire recovery facility in Ohio and any unit for processing tires that is designed by the manufacturer for regular movement from one

operating site to another and which the owner or operator has used at more than one location during the prior year. "Mobile scrap tire recovery facility" specifically includes any tire cutting, baling, or shredding equipment that is moved from site to site for the purpose of processing scrap tires into a useable product at the site or before the scrap tires are removed from the site.

(b) A "class I scrap tire recovery facility" means a scrap tire recovery facility with a permitted daily design input capacity of two hundred tons of scrap tires or greater.

(c) A "class II scrap tire recovery facility" means a scrap tire recovery facility with a registered daily design input capacity of less than two hundred tons of scrap tires.

(14) "Scrap tire storage area" means the part of a premises including but not limited to the scrap tire collection, storage, or recovery facility where whole scrap tires are stored. At a scrap tire recovery facility, the scrap tire storage area also includes the portion of the premises where processed scrap tires are stored.

(15) "Scrap tire storage facility" means any facility where whole scrap tires are stored prior to the scrap tires being transported to one of the destinations listed in paragraph (D)(8) of rule 3745-27-65 of the Administrative Code.

(a) A "class I scrap tire storage facility" means a scrap tire storage facility that has a permitted capacity of greater than ten thousand square feet and limited to three acres of effective scrap tire storage. A "class II scrap tire storage facility" means a scrap tire storage facility that has a registered capacity of not greater than ten thousand square feet of effective scrap tire storage.

(b) A "class II scrap tire storage facility" means a scrap tire storage facility that has a registered capacity of not greater than ten thousand square feet of effective scrap tire storage.

[Comment: Division (C) of section 3734.71 of the Revised Code specifies that the owner or operator of a class I scrap tire storage facility must also be the owner or operator of a licensed scrap tire monocell, monofill, or recovery facility in Ohio, or a solid waste or scrap tire monocell, monofill, or recovery facility located in another state and operating in compliance with the laws of that state.]

(16) "Scrap tire storage pile" means an area where scrap tires are stored either indoors or outdoors on the floor, on the ground, or in racks. The dimensions of a scrap tire storage pile are determined by the location of fire breaks of at least the width specified in Chapter 3745-27 of the Administrative Code around the storage pile. A scrap tire storage pile may consist of one or more separate racks. A scrap tire storage pile may consist of a combination of racks, on the floor, or on the ground storage of scrap tires.

(17) "Scrap tire submergence facility" means a type of scrap tire monofill facility where only whole scrap tires are submerged in water in an engineered structure.

(18) "Scrap tire transporter" or "transporter" means the registrant for a scrap tire transportation business or anyone in the registrant's employ who signs the scrap tire shipping papers or operates the registrant's scrap tire transportation vehicles.

(19) "Seismic impact zone" means an area where the maximum horizontal acceleration in lithified earth material exceeds one-tenth of the acceleration of gravity.

(20) "Sewage sludge" includes but is not limited to scum and solids removed in primary, secondary, or advanced wastewater treatment processes. Sewage sludge does not include the following:

(a) Ash generated during the firing of sewage sludge in a sewage sludge incinerator.

(b) Grit and screenings generated during preliminary treatment of sewage in a treatment works.

(c) Animal manure.

(d) Residue generated during the treatment of animal manure.

(e) Domestic septage.

(21) "Significant zone of saturation" means a zone of saturation that may act as a preferential pathway of migration away from the limits of solid waste placement.

(22) "Solid waste" has the same meaning as in section 3734.01 of the Revised Code.

(23) "Solid waste disposal facility" means any site, location, tract of land, installation, or building used for incineration, composting, sanitary landfilling, or other approved methods of disposal of solid wastes.

(24) "Solid waste energy recovery facility" means any site, location, tract of land, installation, or building where mixed solid waste or select solid waste streams including scrap tires are used as or intended to be used as fuel to produce energy, heat, or steam.

[Comment: A "solid waste energy recovery facility" that exclusively uses scrap tires and other approved rubber waste as fuel~~,~~ may be regulated as a "scrap tire recovery facility."]

(25) "Solid waste management district" means a county that has established a resolution, or joint counties which have entered into an agreement, for the purposes of preparing, adopting, submitting, and implementing a solid waste management plan for the county or joint counties and for the purposes of providing for, or causing to be provided for, the safe and sanitary management of solid wastes within all of the incorporated and unincorporated territory of the county or joint counties and in compliance with Chapters 343. and 3734. of the Revised Code.

(26) "Solid waste management policy committee" means a committee established and convened by the board of county commissioners of a county solid waste management district or the board of directors of a joint solid waste management district to prepare the solid waste management plan of the solid waste management district and in compliance with division (B) of section 3734.54 of the Revised Code.

(27) "Solid waste transfer facility" or "transfer facility" means any site, location, tract of land, installation, or building that is used or intended to be used primarily for the purpose of transferring solid wastes that are generated off the premises of the facility from vehicles or containers into other vehicles or containers for transportation to a solid waste disposal facility. The term does not include any facility that consists solely of portable containers that have an aggregate volume of fifty cubic yards or less nor any facility where legitimate recycling activities are conducted. The term does not include any facility that accepts scrap tires other than scrap tires that are accepted incidental to a mixed solid waste shipment.

(28) "Source-separated yard waste" means yard waste that has been separated at the point of generation or at

the point of collection from other solid wastes. Source separation includes but is not limited to such measures as placing yard waste in portable containers and compartments of portable containers dedicated to yard waste collection, and in vehicles dedicated to yard waste collection.

(29) "Surface water" means any water on the surface of the earth.

(T)

(1) "Tangible net worth" means the tangible assets that remain after deducting liabilities; such assets would not include such intangibles as goodwill and rights to patents or royalties.

(2) "Tire," for purposes of fee collection only, has the same meaning as in section 3734.90 of the Revised Code. "Tire" and "scrap tire" as used in this chapter are not restricted to motor vehicle tires but include all pneumatic tires.

[Comment: The definition of "tire" found in section 3734.90 of the Revised Code applies only to the collection of the state fee on the sale of new tires by a wholesaler.]

(3) "Tire adjustment center" means a premises to which defective new tires and tires returned for warranty adjustment are shipped for analysis of failure and final disposition.

(4) "Tire derived fuel" (TDF) or "tire derived chips" (TDC) means a uniformly shredded product obtained from whole tires where the maximum size of ninety-five per cent of the shreds is less than four inches in any dimension. TDC may be used as a civil engineering material or as feedstock for the manufacturing of crumb rubber or other tire derived material.

[Comment: TDC is defined using the ASTM "Standard Practice for Use of Scrap Tires in Civil Engineering Applications," (D6270-17) (www.astm.org), section 3.1.29, for x-minus classified, size reduced scrap tires.]

(5) "Tire manufacturing finishing center" means premises where tires are manufactured, inspected, and processed to either finished stock or scrap.

(6) "Tire retreading business" means premises where scrap tires are recycled by processing the scrap tires and attaching a new tread to the used tire casing.

(7) "Tire sidewall" means the flat circular part of a tire left after the tread has been cut away. Tire sidewall does not include a bagel cut tire or any cut tire where a portion of the tread remains attached to the sidewall.

(8) "Treat" or "treatment" for the purposes of infectious wastes means any method, technique, or process that renders the wastes noninfectious including but not limited to steam sterilization and incineration. Treat or treatment of wastes identified in division (R)(7) of section 3734.01 of the Revised Code, to substantially reduce or eliminate the potential for the wastes to cause lacerations or puncture wounds.

(U)

(1) "Unit" means a discrete area within the limits of waste placement of a sanitary landfill facility, for which the owner or operator is authorized to dispose of solid waste, that is delineated by the owner or operator for the purpose of complying with the siting, construction, operational, closure or post-closure care

ground water monitoring, and financial assurance requirements of Chapter 3745-27 of the Administrative Code.

(2) "Unstable area" means a location that is susceptible to natural or human-induced events or forces capable of impairing the integrity of some or all of the structural components of a landfill that are responsible for preventing releases from the landfill. Unstable areas can include areas where on-site or local soil conditions result in significant differential settling, areas where the downslope movement of soil or rock due to gravitational influence occurs, or areas where the lowering or collapse of the land surface occurs either locally or over broad regional areas.

(3) "Used tire" means a whole scrap tire. A used tire remains a scrap tire until it has been reused by being installed on a vehicle or trailer.

(V)

(1) "Variance" means an action of the director that alters or changes a requirement of a rule adopted under Chapter 3734. of the Revised Code.

(2) "Vertical expansion" means the extension of the vertical boundary of waste placement that occurs prior to beginning, or being required to begin, closure activities in accordance with rule 3745-27-11 of the Administrative Code. A vertical expansion is a modification. A vertical expansion is not a unit.

(W)

(1) "Waste handling area" means any area of a solid waste facility where solid wastes are stored, loaded, unloaded, baled, shredded, crushed, compacted, or otherwise processed or subjected to salvaging activities. Waste handling areas do not include vehicle staging or vehicle storage areas.

[Comment: For definitions of other types of waste handling areas please see "infectious waste handling area" and "scrap tire handling area."]

(2) "Water pollution" means the unpermitted release of sediment from disturbed areas, solid waste or waste-derived constituents, or leachate to the waters of the state.

(3) "Waters of the state" means all streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and other bodies or accumulations of water, surface and underground, natural or artificial, regardless of the depth of the strata in which underground water is located, that are situated wholly or partly within, or border upon, this state, or are within its jurisdiction, except those private waters that do not combine or effect a junction with natural surface or underground waters.

(4) "Wetland" has the same meaning as in rule 3745-1-02 of the Administrative Code.

(5) "Working face" means that portion of a sanitary landfill facility where solid wastes are unloaded for final deposition.

(X) [Reserved.]

(Y)

(1) "Yard waste" means solid waste that includes the following:

(a) Any plant materials from residential trees and edible gardens.

(b) Brush.

(c) Decorative plant materials that do not contain plastic, metal, polystyrene or other non-compostable material, including but not limited to any of the following:

(i) Pumpkins or gourds.

(ii) Hay or straw bales.

(iii) Holiday trees.

(iv) Discarded or potted flowers.

(v) Wreaths.

(vi) Grave blankets.

(d) Grass clippings.

(e) Leaves.

(f) Prunings from trees or shrubs.

(g) Tree trunks and stumps.

Yard waste does not include materials from industrial processing, agricultural processing, or food processing.

(Z)

(1) "Zone of saturation" means that part of the earth's crust, excluding the capillary zone, in which all voids are filled with water.

(2) "Zoonotic agent" means a type of microorganism, pathogen, virus, or proteinaceous infectious particle that causes disease in vertebrate animals, is transmissible to human beings, and can cause or significantly contribute to disease in or death of human beings.

(AA) Incorporation by reference. The text of the incorporated materials is not included in this rule but is hereby made a part of this rule. Only the specific version referenced in this rule is incorporated. Any amendment or revision to a referenced document is not incorporated until this rule has been amended to specify the new version. The materials incorporated by reference are available as follows:

(1) Federal statutes. The full text is available in electronic format at http://www.gpo.gov/fdsys. These laws are also available for inspection and copying at most public libraries and "The State Library of Ohio." Appropriate federal statutes listed in this rule are those amended through January 2017 and include the following:

(a) Investment Company Act of 1940, 15 U.S.C. 80a-1 to 80a-64.

(b) U.S.C. Title 11, Bankruptcy.

(2) "Standard Practice for Use of Scrap Tires in Civil Engineering Applications," (D6270-17), approved in

1998, re-approved in 2004 and 2012; amended in 2008 and 2017. Information and copies may be obtained by writing to: "ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, Pennsylvania 19428-2959." These documents are available for purchase at http://www.astm.org.

(3) Centers for disease control, "Universal Precaution System," 2017. The full text is available in electronic format at: https://www.cdc.gov/infectioncontrol/basics/standard-precautions.html.

Effective:	4/22/2019
Five Year Review (FYR) Dates:	1/22/2019 and 04/22/2024

CERTIFIED ELECTRONICALLY

Certification

04/10/2019

Date

Promulgated Under:	119.03
Statutory Authority:	3734.02, 3734.021, 3734.028, 3734.12, 3734.50, 3734.70, 3734.71, 3734.72, 3734.73, 3734.74
Rule Amplifies:	3734.01, 3734.02, 3734.12, 3734.50, 3734.51, 3734.70, 3734.71, 3734.72, 3734.73, 3734.74, 3734.84, 3734.86
Prior Effective Dates:	07/28/1976, 03/01/1990, 05/31/1991, 06/01/1994, 02/01/1995, 12/25/1998, 01/28/2002, 08/15/2003, 07/01/2004, 11/01/2007, 03/01/2013

3745-27-02 Permit to install.

(A) Except as provided in paragraph (D) of this rule, no person shall establish or modify a solid waste facility or infectious waste treatment facility without obtaining a permit to install issued by the director.

(B) For the purposes of this chapter, "establish" or "establishment" of a sanitary landfill facility or infectious waste treatment facility means to construct or install any of the proposed facility components, and includes excavation that is related to the construction of a facility or any components thereof. Establish or establishment does not include clearing and grubbing.

(C) For the purposes of this chapter, "modify" or "modification" means the following:

(1) A sanitary landfill facility undergoing any of the following:

(a) A substantial horizontal or vertical increase in the limits of waste placement including but not limited to those modifications specified in division (A)(2)(d) of section 3734.05 of the Revised Code.

[Comment: A reduction to the limits of waste placement or total capacity by itself is generally not considered to be a modification, unless the reduction also results in other substantial changes to the facility such that paragraph (C)(1)(b) of this rule is applicable.]

(b) Any change which may endanger human health or the environment, including but not limited to a change to operation, technique of waste receipt, type of waste received, or design or construction of the facility, as determined by the director.

(2) An infectious waste treatment facility undergoing any of the following:

(a) A substantial change in waste handling at the facility including but not limited to the following:

(i) Type of waste received.

(ii) Any change in the facility's treatment technology or technologies.

(b) An increase in the treatment capacity. For the purposes of this rule, "treatment capacity" means the maximum amount of waste permitted by Ohio EPA to be charged into the treatment unit per hour, or the engineered throughput capacity per hour if no such permitted capacity is authorized.

(c) Any other substantial change which may endanger human health or the environment.

(3) A solid waste incinerator or solid waste energy recovery facility undergoing the following:

(a) Any substantial expansion of the waste handling area.

(b) Any substantial change to the location of the waste handling area.

(D) Exceptions. The following facilities do not need to obtain a permit to install:

(1) A solid waste facility used for sewage sludge treatment or disposal when the treatment or disposal is authorized by a current permit issued under Chapter 3704. or Chapter 6111. of the Revised Code.

(2) A municipal solid waste landfill subject to the interim composite liner/leachate collection system specifications pursuant to rule 3745-27-20 of the Administrative Code.

(3) An infectious waste treatment facility owned or operated by the generator of the wastes who treats wastes

generated at any premises owned or operated by the generator.

(4) An infectious waste treatment facility owned or operated by a hospital, as defined in section 3727.01 of the Revised Code, which treats any of the following:

(a) Sharp wastes generated by a generator who has staff privileges at that hospital and produces fewer than fifty pounds of infectious wastes in any one month.

(b) Wastes generated in providing care to a patient by an emergency medical service organization, in accordance with section 4765.01 of the Revised Code.

(c) Wastes generated by an individual for purposes of the individual's own care or treatment.

(5) An infectious waste treatment facility that holds a license to operate a crematory facility issued in accordance with Chapter 4717. of the Revised Code and a permit issued in accordance with Chapter 3704. of the Revised Code.

(6) An infectious waste treatment facility that treats or disposes of dead animals or parts thereof, or the blood of animals, and is subject to any of the following:

(a) Inspection under the "Federal Meat Inspection Act," 81 U.S.C Title 21.~~.~~

(b) Chapter 918. of the Revised Code.

(c) Chapter 953. of the Revised Code.

(7) A unit of a hazardous waste facility subject to the hazardous waste facility installation and operation permit specifications pursuant to Chapter 3734. of the Revised Code.

(8) A solid waste facility that holds a current registration pursuant to Chapter 3734. of the Revised Code and the rules adopted thereunder.

(E) Permit to install application.

(1) A person proposing to establish or modify a solid waste facility or infectious waste treatment facility shall submit an application for a permit to install with accompanying detail plans and specifications to the director as deemed necessary in order to determine whether the criteria for approval have been met.

(2) An application for a permit to install shall be accompanied by a nonrefundable application fee established in Chapters 3734. and 3745. of the Revised Code.

(3) An applicant for a permit to install, other than for a modification, shall file a disclosure statement on a form developed by the attorney general with the director and the attorney general at the same time the applicant files an application for a permit to install with the director.

(4) An application for a permit to install shall be signed by either the owner or operator of the facility and be one of the following:

(a) In the case of a corporation, a principal executive officer of at least the level of vice president, or a duly authorized representative, if such representative is responsible for the overall operation of the facility.

(b) In the case of a partnership, a general partner.

(c) In the case of a limited liability company, a manager, member, or other duly authorized representative of the limited liability company, if such representative is responsible for the overall operation of the facility.

(d) In the case of sole proprietorship, the owner.

(e) In the case of a municipal, state, federal, or other governmental facility, the principal executive officer, the ranking elected official, or other duly authorized employee.

(5) The signature on the application for a permit to install shall constitute personal affirmation that all statements or assertions of fact made in the application are true and complete, comply fully with applicable state requirements, and subject the signatory to liability under those state laws forbidding false or misleading statements.

(6) Not later than thirty days after the public meeting on the application~~,~~ as specified in division (A)(2)(d) of section 3734.05 of the Revised Code, a copy of the transcript of the public meeting, copies of any exhibits, displays, or other materials presented by the applicant at the meeting, and the original copy of any written comments submitted at the meeting shall be submitted to the director by the owner or operator of a municipal solid waste landfill, industrial solid waste landfill, or residual waste landfill.

(F) A permit to install shall be issued, modified, revoked, or denied and may be appealed in accordance with Chapters 3745-47 and 3745-49 of the Administrative Code and section 3734.09 of the Revised Code.

(G) Issuance of the permit to install.

(1) In deciding whether to issue or deny a permit to install, the director shall evaluate whether the construction, operation, closure, and if applicable, post closure care of the facility is capable of fulfilling all appropriate regulatory requirements for protecting surface water, ground water, and air by soliciting the input and coordinating the issuance of the permit to install with all relevant divisions of Ohio EPA, as specified in the appendix to this rule. The director may consult with other divisions or persons as the director deems appropriate.

(2) In deciding whether to issue or deny a permit to install, the director may take into consideration the social and economic impact of the air contaminants, water pollutants, or other adverse environmental impact that may be a consequence of issuance of the permit to install.

(H) Terms and conditions.

(1) The director may impose such special terms and conditions as are appropriate or necessary to ensure compliance with rules adopted under division (A) of section 3734.02 of the Revised Code and division (D) of section 3734.12 of the Revised Code.

(2) If the director determines that standards more stringent than those applicable in rules adopted under division (A) of section 3734.02 of the Revised Code and division (D) of section 3734.12 of the Revised Code, or standards pertaining to subjects not specifically addressed by those rules, are necessary to ensure that a solid waste facility constructed at the proposed location will not cause a nuisance, cause or contribute to water pollution, or endanger public health or safety, the director may issue a permit to install for the facility with such terms and conditions as the director finds necessary to protect public health and safety and the environment. If a permit to install is issued, the director shall state in the order issuing it the specific findings supporting each such term or condition.

(I) Termination.

(1) A permit to install for a new facility shall terminate three years after the effective date of the permit to install if the owner or operator has not undertaken a continuing program of installation or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation of the new facility.

(2) The owner or operator may request the establishment of a new termination date by submitting to the director a justification for the extension of time and an analysis demonstrating that the facility continues to meet the applicable siting criteria and design standards established in the current version of rules adopted under Chapter 3734. of the Revised Code.

(3) The director may establish a new termination date not to exceed twelve months of the current effective date if the director determines that the owner or operator has adequately justified an extension of time and has demonstrated that the facility continues to meet the applicable siting criteria and design standards established in the current version of rules adopted under Chapter 3734. of the Revised Code.

(J) Administrative change to the permit to install. An administrative change to the permit to install is an amendment that does not result in a modification or alteration to the facility. A permit to install may be administratively changed for the following reasons:

(1) To update administrative information including but not limited to the telephone number, address, or name of the facility.

(2) To clarify or correct Ohio EPA typographical errors contained in the permit to install. Such changes shall be made solely for the purpose of clarification or correction of typographical errors and do not constitute a modification or alteration of the facility.

(3) To establish a new termination date of the permit to install in accordance with paragraph (I)(3) of this rule.

(K) Revocation of the permit to install. The director may revoke a permit to install if any of the following occur:

(1) Any cause that would require disqualification pursuant to division (A), (B), (D), or (E) of section 3734.44 of the Revised Code from receiving a permit to install upon original application.

(2) Fraud, deceit, or misrepresentation in securing the permit to install or in the conduct of the permitted activity.

(3) Offering, conferring, or agreeing to confer any benefit to induce any other individual or business concern to violate the provisions of Chapter 3734. of the Revised Code, any rule adopted thereunder, or of any other law relating to the transportation, transfer, treatment, storage, or disposal of solid wastes, infectious wastes, or hazardous wastes.

(4) Coercion of a customer by violence or economic reprisal or the threat thereof to utilize the services of any permit holder.

(5) Preventing, without authorization of the director, any individual or business concern from transferring or disposing of solid wastes or hazardous wastes at a permitted treatment, transfer, storage, or disposal facility other than a facility owned or operated by the permit holder, or preventing, without authorization of the director, any individual or business concern from treating infectious waste at a licensed infectious waste treatment facility other than a facility owned and operated by the permit holder.

(L) Compliance with this rule does not exempt any person from compliance with any other applicable law.

3745-27-02

Effective:	6/30/2023
Five Year Review (FYR) Dates:	4/11/2023 and 06/30/2028

CERTIFIED ELECTRONICALLY

Certification

06/16/2023

Date

Promulgated Under:	119.03
Statutory Authority:	3734.02, 3734.021, 3734.12, 3734.73
Rule Amplifies:	3734.02, 3734.021, 3734.05, 3734.09, 3734.12, 3734.44, 3734.73, 3734.76, 3734.77, 3734.78
Prior Effective Dates:	10/17/2003, 11/01/2007, 07/01/2008, 01/01/2017, 01/01/2021

3745-27-03 Exemptions and variances.

(A) Chapters 3745-27, 3745-29, 3745-30 and 3745-37 of the Administrative Code shall not apply to the following activities or facilities:

(1) Solid wastes generated within a single-family residence and disposed of on the premises where generated in a manner that does not create a nuisance or health hazard.

(2) The temporary storage of solid wastes, other than scrap tires, prior to collection for disposal or transfer. The temporary storage of putrescible solid wastes in excess of seven days, or temporary storage of any solid wastes where such storage causes a nuisance or health hazard in the judgment of the health commissioner or the director or their authorized representative shall be considered open dumping.

In addition, Chapters 3745-27 and 3745-37 of the Administrative Code shall not apply to the storage of one hundred or fewer scrap tires unless they are stored in such a manner that, in the judgment of the director or the board of health of the health district in which the scrap tires are stored, the storage causes a nuisance, a hazard to public health or safety, or a fire hazard.

(3) Vehicles used for hauling solid wastes other than scrap tires.

(4) The beneficial use of coal combustion byproducts at coal mining and reclamation operations and abandoned mine lands that are regulated and authorized by the Ohio department of natural resources pursuant to section 1513.02 of the Revised Code.

(5) Incinerators or energy recovery facilities that incinerate wastes generated on one or more premises owned by the person who owns the incinerator or energy recovery facility. This does not include a facility that treats infectious waste pursuant to Chapter 3734. of the Revised Code.

(6) A junk yard or scrap metal processing facility licensed pursuant to Chapter 4737. of the Revised Code, or a motor vehicle salvage business licensed pursuant to Chapter 4738. of the Revised Code. This exemption does not apply to the management, use, collection, storage, recovery, disposal, or beneficial use of scrap tires at a junk yard, scrap metal processing facility, or motor vehicle salvage business, and shall not be construed to include sites where open dumping or open burning has occurred.

(7) Pond and lagoon operations regulated under Chapter 6111. of the Revised Code.

(8) Sewage sludge disposal, use, transportation or storage as approved under Chapter 6111. of the Revised Code.

(9) Land application of the following solid wastes authorized under Chapter 6111. of the Revised Code:

(a) Agricultural waste for incorporation into soil as a soil amendment or for agricultural or horticultural applications, provided that all of the following conditions are met:

(i) The agricultural waste is limited to source-separated non-processed plant materials including stems, leaves, vines, roots, and raw vegetables, fruits, and grains.

(ii) The agricultural waste is land-applied exclusively on fields owned by the owner of the agricultural production operation that generated the agricultural waste.

(iii) The land application of the agricultural waste does not create a nuisance or health hazard in the judgment of the health commissioner or the director.

(b) Pulp or paper sludge from wastewater treatment works.

(c) Sawdust.

(d) Compost product blended with a solid waste.

(e) Lime-based or gypsum-based waste including but not limited to flue gas desulfurization sludge, lime kiln, or cement kiln dust.

(10) A combustion unit permitted and operating under an air permit that uses solid wastes as fuels or ingredients in accordance with 40 C.F.R. Part 241 and rule 3745-599-10 of the Administrative Code.

(11) Infectious wastes generated on the premises of a single-family residence not utilized for commercial purposes.

(12) Infectious wastes generated by individuals for the purposes of their own care or treatment that are disposed of with solid wastes from the individual's residence.

(13) Tree stumps not otherwise exempted by this rule or Chapter 3734. of the Revised Code that are disposed in a licensed construction and demolition debris disposal facility.

(14) Controlled substances handled in accordance with Chapters 4729. and 3719. of the Revised Code or materials that have been ordered destroyed by a court of law that are destroyed at facilities licensed for the treatment of infectious waste.

(15) Land application of yard waste for incorporation into soil as a soil amendment, for agricultural or horticultural applications, or for land reclamation, provided that such land application does not create a nuisance or health hazard in the judgment of the health commissioner or the director.

(16) The disposal of animals destroyed because of a dangerously infectious or contagious disease in accordance with section 941.14 of the Revised Code.

(B) Exemptions. Pursuant to division (G) of section 3734.02 of the Revised Code, the director may, by order, exempt any person generating, collecting, storing, treating, disposing of, or transporting solid wastes or infectious wastes, or processing solid wastes that consist of scrap tires from any requirement of Chapter 3734. of the Revised Code or any rules adopted thereunder if granting the exemption is unlikely to adversely affect the public health or safety or the environment.

(C) Variances.

(1) Any person may apply for a variance from any provision of this chapter except for those adopted under division (M) of section 3734.02 or section 3734.021 of the Revised Code.

(2) Applications for a variance shall identify each provision for which the variance is requested and shall contain information regarding the reason and justification for the variance and any other information deemed appropriate by the director as specified in paragraph (C)(5) of this rule.

(3) In accordance with division (S)(1) of section 3745.11 of the Revised Code, a non-refundable fee of fifteen dollars shall be paid at the time the application for a variance is submitted. If the application for a variance is part of an application for a permit to install, the variance application fee shall be paid in addition to the permit to install application fee.

(4) The director shall approve or deny an application for a variance or renewal of a variance not later than six months after the date upon which the director receives a complete application with all pertinent

information and data required, unless the application for a variance is part of an application for a permit to install. If an application for a variance is part of an application for a permit to install, the director shall approve or deny an application for a variance or renewal of a variance concurrent with a final or proposed action on the permit to install application.

(5) The director shall issue a variance only if the applicant demonstrates to the director's satisfaction that construction, operation, closure activities, or post-closure activities of the solid waste facility in the manner approved by the variance and any terms or conditions imposed as part of the variance will not create a nuisance or a hazard to public health or safety or the environment and is unlikely to result in a violation of any other requirement of Chapters 3704., 3714., 3734. or 6111. of the Revised Code and any rules adopted thereunder.

(6) In issuing a variance, the director shall comply with the applicable requirements of division (A) of section 3734.02 of the Revised Code.

Replaces:	3745-27-03
Effective:	4/22/2019
Five Year Review (FYR) Dates:	04/22/2024

CERTIFIED ELECTRONICALLY

Certification

04/10/2019

Date

Promulgated Under:	119.03
Statutory Authority:	3734.02, 3734.12, 3734.021
Rule Amplifies:	941.14, 1513.02, 3734.02, 3734.021
Prior Effective Dates:	07/29/1976, 04/06/1990, 08/10/1991, 10/31/1993, 03/29/1996, 08/15/2003, 09/23/2014

3745-27-04 Regulation of select wastes.

(A) The owner or operator of a solid waste landfill that may be deemed an industrial landfill facility or a residual landfill facility in accordance with rule 3745-30-01 of the Administrative Code may obtain authorization from the director in accordance with rule 3745-30-03 of the Administrative Code to comply with Chapter 3745-30 of the Administrative Code in lieu of Chapter 3745-27 of the Administrative Code. Upon receiving authorization from the director in accordance with rule 3745-30-03 of the Administrative Code, the owner or operator shall comply with the requirements of Chapter 3745-30 of the Administrative Code, except that the owner or operator shall continue to comply with all applicable authorizing documents, including a plan approval, operational report, or approved permit to install for the solid waste landfill, and the current operating license for the solid waste landfill until such time as the owner or operator obtains the necessary approvals to change these requirements.

(B) A solid waste landfill that exclusively disposes of processed scrap tires in a monofill or monocell is subject to Chapter 3745-580 of the Administrative Code.

(C) For the purposes of this chapter and Chapter 3745-30 of the Administrative Code, the determination of whether spent foundry sand, fly ash, or bottom ash, excluding fly ash and bottom ash produced by a solid waste disposal facility or infectious waste treatment facility, is nontoxic shall be determined by the Ohio environmental protection agency.

Effective:	11/7/2024
Five Year Review (FYR) Dates:	8/14/2024 and 11/07/2029

CERTIFIED ELECTRONICALLY

Certification

10/22/2024

Date

Promulgated Under:	119.03
Statutory Authority:	3734.02
Rule Amplifies:	3734.02
Prior Effective Dates:	07/29/1976, 01/13/1992, 06/01/1994, 03/01/1996, 11/30/2002, 01/01/2017

3745-27-05 Applicability and relation to other laws.

(A) Disposal of solid waste under Chapter 3734. of the Revised Code shall only be by the following methods or a combination thereof:

(1) Disposal at a sanitary landfill facility licensed in accordance with section 3734.05 of the Revised Code.

(2) Incinerating at an incinerator licensed in accordance with section 3734.05 of the Revised Code.

(3) Composting at a composting facility licensed or registered in accordance with section 3734.05 of the Revised Code.

(4) Alternative disposal methods either as engineered fill or land application, provided that the applicant has received prior authorization from the director that use as engineered fill or land application of the solid wastes will not create a nuisance or harm human health or the environment and is capable of complying with other applicable laws.

(a) A request for an alternative disposal method authorization shall provide the following information:

(i) The name and address of the applicant or the person responsible for the disposal, the generator, the parcel number where disposal will occur, and the land owner. The applicant shall certify that the application is true and complete.

(ii) A description of efforts at the original source of generation to prevent or reduce the generation of the waste, and efforts to recycle or reuse the waste in a manner other than disposal.

(iii) A waste characterization. The waste generator shall provide an analysis of the solid waste and a justification as to why the parameters were chosen. The generator shall certify that the analysis is true, accurate, and representative of the solid waste.

(iv) The method of alternative disposal and how the waste will be used or applied.

(v) The quantity of solid waste, rate of disposal, disposal timeframes, and the projected impact of recurrent applications of wastes over time.

(vi) A plan drawing of the proposed limits for solid waste disposal. If Ohio EPA determines that narrative or plan drawings are necessary to characterize the waste disposal location and the surrounding environs to evaluate nuisance creation, harm to human health or the environment, and the capability of complying with other applicable laws, the applicant shall supply such information as a precondition to further consideration of the request.

(vii) A signed written consent from the generator and land owner to the use of the solid waste in the project and to the location of disposal.

(viii) A contingency plan for disposal of any solid waste brought to the property that is not acceptable or is otherwise not disposed of on the property.

(ix) A description of other projects, if known, where the waste has been used.

[Comment: Forms are available from Ohio EPA for alternative disposal method authorization requests.]

(b) Any engineering information provided in the request shall be signed and sealed by a professional engineer registered in the state of Ohio.

(c) Ohio EPA may require other such information deemed necessary to determine that the activity will be in compliance with the applicable laws and regulations administered by the director.

(d) Signatures pursuant to paragraphs (A)(4)(a)(i), (A)(4)(a)(iii) and (A)(4)(a)(vii) of this rule shall be by the following:

(i) In the case of a corporation, by a principal executive officer of at least the level of vice president, or a duly authorized representative.

(ii) In the case of a partnership, by a general partner.

(iii) In the case of a sole proprietorship, by the owner.

(iv) In the case of a municipal, state, federal or other governmental entity, by the principal executive officer, the ranking elected official, or other duly authorized employee.

(5) For technologically enhanced naturally occurring radioactive material (TENORM), in accordance Chapter 3734. of the Revised Code and the rules adopted thereunder.

(B) Solid waste disposal by means of open burning shall be conducted in accordance with Chapter 3745-19 of the Administrative Code.

(C) A beneficial use byproduct that is not a hazardous waste that is managed and beneficially used by placement on the land in accordance with Chapter 3745-599 of the Administrative Code is not a solid waste under Chapter 3734. of the Revised Code.

(D) No person shall conduct, permit, or allow open dumping. In the event that open dumping is occurring or has occurred at a property, the person responsible for the open dumping, the owner of the property, or the person who allow or allowed open dumping to occur, shall promptly remove and dispose or otherwise manage the solid waste in accordance with Chapter 3734. of the Revised Code and shall submit verification that the solid waste has been properly managed.

[Comment: Prompt removal and disposal of solid waste does not relieve any obligations under state or federal environmental statutes. This may include environmental clean-up of the site or remediation of ground water contamination resulting from the open dumping.]

(E) Relation to other laws. No provision of Chapters 3745-27, 3745-30, and 3745-501 of the Administrative Code shall exempt any person from compliance with any section of the Ohio Revised Code, or any regulation of any federal agency, or of any department of the state government, including the Ohio department of health and the Ohio department of natural resources.

Effective:	2/11/2024
Five Year Review (FYR) Dates:	11/27/2023 and 11/27/2028

CERTIFIED ELECTRONICALLY

Certification

02/01/2024

Date

Promulgated Under:	119.03
Statutory Authority:	3734.02
Rule Amplifies:	3734.02, 3734.03, 3734.05
Prior Effective Dates:	07/29/1976, 08/15/2003, 01/01/2021

3745-27-06 Sanitary landfill facility permit to install application.

(A) A permit to install application pursuant to section 3734.05 of the Revised Code shall be submitted and approved by the director before the establishment or modification of the sanitary landfill facility is begun. Compliance with this rule shall not exempt any person from compliance with any other permit, license, or other obligation for authorization.

(1) The permit to install application shall contain information in accordance with paragraphs (B) and (C) of this rule so that the director can determine if the criteria set forth in rules 3745-27-02 and 3745-27-07 of the Administrative Code are satisfied. If Ohio EPA determines that additional information is necessary to determine whether the criteria set forth in rules 3745-27-02 and 3745-27-07 of the Administrative Code are satisfied, the applicant shall supply such information as a precondition to further consideration of the permit to install application.

(a) A permit to install application for a new sanitary landfill facility, a new unit, or a permit to install application that is submitted in response to division (A)(3) of section 3734.05 of the Revised Code shall contain information in accordance with paragraphs (B) and (C) of this rule with the exception of paragraph (B)(5)(d) of this rule.

(b) A permit to install application to modify a sanitary landfill facility for a vertical expansion to the upper limits of solid waste placement shall contain the following information:

(i) The plan sheets specified in paragraphs (B)(1), (B)(2), (B)(3)(g), (B)(4), (B)(5) and (B)(6) of this rule.

(ii) The plan sheet showing the location of proposed explosive gas control system structures, if necessary, specified in paragraph (B)(3)(f) of this rule.

(iii) Detail drawings, as necessary, specified in paragraph (B)(7) of this rule.

(iv) The reports specified in paragraphs (C)(1), (C)(2), and (C)(7) of this rule.

(v) The subsurface investigation report, as necessary to provide supporting information for the geotechnical analysis, specified in paragraph (C)(3) of this rule.

(vi) Geotechnical analysis for bearing capacity, static stability, seismic stability and settlement specified in paragraphs (C)(4)(b) to (C)(4)(e) and (C)(4)(g) of this rule.

(vii) Calculations, as necessary, specified in paragraph (C)(5) of this rule.

(viii) The quality assurance/quality control and final closure/post-closure care plans, specified in paragraphs (C)(9)(c) and (C)(9)(d) of this rule.

(ix) The letters and list of permits specified in paragraphs (C)(10)(a) and (C)(10)(b) of this rule.

(c) A permit to install application to modify a sanitary landfill facility for a vertical expansion to the lower limits of solid waste placement shall contain the following information:

(i) The plan sheets specified in paragraphs (B)(1) to (B)(6) of this rule.

(ii) Detail drawings, as necessary, specified in paragraph (B)(7) of this rule.

(iii) The reports specified in paragraphs (C)(1), (C)(2), (C)(3), and (C)(7) of this rule.

(iv) Geotechnical analysis for hydrostatic uplift, bearing capacity, static stability, seismic stability, settlement, and seepage piping failure specified in paragraphs (C)(4)(a) to (C)(4)(f) of this rule.

(v) Calculations, as necessary, specified in paragraph (C)(5) of this rule.

(vi) The explosive gas monitoring and quality assurance/quality control plans specified in paragraphs (C)(9)(b) and (C)(9)(c) of this rule.

(vii) The letters and list of permits specified in paragraphs (C)(10)(a) and (C)(10)(b) of this rule.

(d) A permit to install application to modify a sanitary landfill facility for a change to the information specified in paragraph (C)(8) of this rule shall discuss the change pursuant to paragraph (C)(8) of this rule in addition to the following:

(i) The summary specified in paragraph (C)(1) of this rule.

(ii) Any variance or exemption requests specified in paragraph (C)(2) of this rule.

(iii) If the change is to the authorized maximum daily waste receipt, the calculations showing gross volume and life specified in paragraph (C)(5)(a) of this rule.

(e) A permit to install application to modify a sanitary landfill facility, other than what is listed in paragraphs (A)(1)(b) to (A)(1)(d) of this rule, shall contain the information specified by paragraphs (B) and (C) of this rule that are affected by the change and shall incorporate any alterations that were previously approved for those components affected by the change.

(2) The permit to install application shall contain detail engineering plans, specifications, and information that follow the format specified in paragraphs (B) and (C) of this rule such that the director can determine if the criteria set forth in rule 3745-27-07 of the Administrative Code are satisfied.

(3) When publicly available information is specified in this rule, the applicant may use written or published information from public or private sources that is reasonably available to the public, and includes but is not limited to visual surveys from public rights-of-way and public lands of the area surrounding the proposed sanitary landfill facility or written or oral surveys of the landowners around the proposed sanitary landfill facility.

[Comment: As long as the applicant can document that a reasonable attempt was made to obtain the information, the application will be considered complete even if information is lacking, such as a lack of response to the written or oral survey.]

(4) Engineering information included in the permit to install application shall be signed and sealed by a professional engineer registered in Ohio.

(5) For regulatory review purposes, the initial application and any subsequent revisions to the application, shall be submitted in duplicate to Ohio EPA with a third copy sent to the board of health of the health district where the facility is or will be located. Any revisions to the application must be accompanied by an index listing the change and the page where the change occurred. Upon written request from Ohio EPA, the applicant shall submit two additional and identically complete copies of the revised application to Ohio EPA and a statement that, to the best of the knowledge of the applicant, the detail engineering plans, specifications, and information in the permit application are true and accurate.

(6) Concurrent to submitting the permit to install application, the applicant shall also do the following:

(a) For a new sanitary landfill facility, submit a disclosure statement to the office of the attorney general in accordance with rules 109:6-1-01 to 109:6-1-04 of the Administrative Code.

(b) Submit to the division of Ohio EPA regulating air pollution control and water pollution control, written notification of intent to site a sanitary landfill facility and a written request for information pertaining to any regulatory requirements under Chapter 3704. and 6111. of the Revised Code.

(7) The permit to install application, notwithstanding any deficiencies, may be considered and acted upon if sufficient information is provided in the application for the director to determine whether the criteria set forth in rules 3745-27-02 and 3745-27-07 of the Administrative Code are satisfied.

(8) Upon issuance of the permit to install, Ohio EPA will send one copy of the permit to install and approved permit application to the board of health where the facility is or will be located, will return one copy to the applicant, and will retain two copies in Ohio EPA's files.

(9) The permit to install shall remain in effect until the director has discontinued the post-closure care period of the sanitary landfill facility, unless the permit has been revoked or terminated in accordance with rule 3745-27-02 of the Administrative Code.

(B) Plan sheets. The following detail engineering plans, specifications, and information for each unit of a sanitary landfill facility shall be shown by means of drawings and narrative descriptions where appropriate. Minimum dimensions of the plan drawings shall be twenty-four inches by thirty-six inches.

(1) The detail engineering plan cover sheet, to be numbered sheet 1, shall contain the following information:

(a) The name of the sanitary landfill facility.

(b) The precise geographic location and boundaries of the sanitary landfill facility and the area within a five-mile radius including any airport runways to be shown on a road map with a scale of one inch equals no greater than one mile.

(c) The name and address of the permit to install applicant for the sanitary landfill facility.

(d) The name and address of the owner and operator of the sanitary landfill facility, if different from the applicant.

(e) The name and address of the person who prepared the plans.

(f) Index of plan sheets.

(2) Plan drawings, showing items located within the facility boundary or within one thousand feet of the limits of solid waste placement or as otherwise specified in this paragraph, shall be on a series of plan drawings numbered consecutively 2A, 2B, 2C, etc. A scale of one inch equals no greater than two hundred feet shall be used. All items specified in an individual subheading shall be shown on the same plan drawing, or a note shall be on the plan sheet stating the item does not exist within the specified distance from the limits of solid waste placement. An individual plan drawing may contain information specified in more than one individual subheading. The plan drawings shall include the following:

(a) Plan drawings pursuant to paragraph (B)(2) of this rule shall include the following:

(i) The property lines of land owned or leased for the sanitary landfill facility as determined by a property survey conducted by a professional surveyor registered in Ohio.

(ii) The limits of solid waste placement, leachate storage structures, and leachate lift stations.

(iii) Occupied structures.

(iv) Existing topography showing streams, lakes, springs, wetlands, and other surface waters, with a contour interval no greater than five feet.

(v) The north arrow.

(vi) The location of survey marks.

(vii) Each unit of the sanitary landfill facility.

(viii) The facility boundary.

(b) The following based on publicly available information:

(i) Zoning classifications, property owners, and political subdivisions.

(ii) Man-made potential explosive gas migration pathways, including sewers, water lines, electrical cables, and other underground utilities; field tiles; french drains; pipelines; and other potential sources of explosive gas including oil wells, gas wells, and other landfills.

(iii) The limits of any regulatory floodplains.

(iv) National park or recreation areas, candidate areas for potential inclusion into the national park system, and any state park or established state park purchase areas.

(v) State nature preserves, state wildlife areas, national and state scenic rivers, any national wildlife refuge, special interest areas, research natural areas in the Wayne national forest, outstanding national resource waters, and exceptional coldwater habitats or exceptional warmwater habitats as defined in Chapter 3745-1 of the Administrative Code.

(vi) Public and private water supply wells within two thousand feet of the limits of solid waste placement. A scale insert may be used if necessary.

(vii) The limits of drinking water source protection areas for public water systems using ground water that have been endorsed or delineated by Ohio EPA for a public water supply.

(viii) Faults that have had displacement in Holocene time.

(ix) Surface and underground mining of coal and noncoal minerals with the angle of draw within two thousand feet of the limits of solid waste placement using a scale insert if necessary, and oil and gas wells.

(x) The limits of aquifers declared by the federal government under the "Safe Drinking Water Act", 42 U.S.C 300f et. seq. (1974), to be a sole source aquifer.

(c) The limits of disturbance and the facility boundary. The limits of disturbance include but are not limited to the limits of excavation, borrow areas, storage areas, staging areas, areas to be cleared and grubbed, and roadways.

(3) Plan drawings, showing items located within three hundred feet of the limits of solid waste placement shall be on a series of plan drawings numbered consecutively 3A, 3B, 3C, etc. A scale of one inch equals no greater than two hundred feet shall be used. Each plan drawing shall include the items specified in paragraph (B)(2)(a) of this rule. All items specified in an individual subheading shall be

shown on the same plan drawing unless specified otherwise. An individual plan drawing may contain information specified in more than one individual subheading. The plan drawings shall include the following:

(a) The location of existing or proposed pipes and conduits, electric lines, french drains, roads, and railroads; and any easements bordering or within the proposed facility boundaries.

(b) The location of subsurface investigation sites, which are any location where subsurface conditions are investigated by data collection or evaluation, including but not limited to borings, test pits, monitoring wells, piezometers, tensiometers, geophysical survey stations, and soil gas survey stations; and proposed ground water monitoring wells.

(c) Potentiometric maps of the uppermost aquifer system and significant zones of saturation above the uppermost aquifer system. More than one plan sheet may be used.

(d) The location of any permanent ground water control structures.

(e) The location of any existing or proposed explosive gas control system.

(f) A diagram showing the phases of the sanitary landfill facility.

(g) The location of any monocells or monofills.

[Comment: Scrap tires and secondary aluminum waste are only authorized for disposal at a sanitary landfill facility in a monofill or monocell. The applicant may opt to segregate other waste streams.]

(h) The land set aside for leachate treatment or pretreatment facilities pursuant to paragraphs (K)(5) and (K)(6) of rule 3745-27-19 of the Administrative Code.

(4) Plan drawings for the entire sanitary landfill facility shall be on plan drawings numbered consecutively 4A, 4B, 4C, etc. A scale of one inch equals no greater than two hundred feet and contour intervals of no greater than five feet for slopes less than or equal to twenty-five per cent and ten feet for slopes greater than twenty-five per cent shall be used. The plan drawings shall show the boundaries and elevation and include the following:

(a) The horizontal and vertical limits of excavation proposed in the permit to install application, including any areas where added geologic material is necessary to comply with the isolation distance requirement in rule 3745-27-07 of the Administrative Code.

(b) The horizontal limits and top and bottom elevations of the recompacted soil liner proposed in the permit to install application.

(c) The top elevation of the leachate collection layer, pipe inverts, and layout of the leachate collection and management system, including any leachate storage structures and leachate lift stations proposed in the permit to install application.

(d) The horizontal limits and top and bottom elevations of existing waste and waste placement proposed in the permit to install application. Limits and elevations of existing waste can be determined by surveys. If a sanitary landfill facility does not have survey results, the applicant shall provide justification of the limits shown in the permit to install application. If the authorizing document does not show limits of existing waste placement, then the elevation of final waste placement shall be deemed to be two feet below the final grade shown, unless alternative limits are satisfactorily demonstrated to Ohio EPA.

(e) If a separatory liner/leachate collection system is necessary, its horizontal limits and top and bottom elevations.

(f) The horizontal limits and top and bottom elevations of the composite cap system the surface water control structures including permanent ditches to control run-on and runoff and sedimentation ponds showing the inlet and outlet, and any permanent ground water control structures proposed in the permit to install application.

(g) An established grid system with northings and eastings not more than five hundred feet apart.

(5) Cross sections on plan drawings numbered consecutively 5A, 5B, 5C, etc. shall clearly show the horizontal and vertical scale used and include the following:

(a) The hydrogeology at a sanitary landfill facility intercepted by borings or other subsurface investigation methods that show the following:

(i) Existing topography.

(ii) The horizontal and vertical limits of excavation proposed in the permit to install application.

(iii) The horizontal limits and top and bottom elevations of any added geologic material.

(iv) The horizontal limits and bottom elevations of the recompacted soil liner.

(v) The bottom of any subsurface leachate storage structures or leachate lift stations.

(vi) Geologic stratigraphy and significant zones of saturation corresponding to information from the subsurface investigation.

(vii) The uppermost aquifer system and saturated stratigraphic units above the uppermost aquifer system.

(viii) Subsurface investigation logs, monitoring well construction diagrams, and piezometer construction diagrams intercepted by the cross-section.

(ix) Any permanent ground water control structures.

(b) The perimeter of the property showing the natural potential explosive gas migration pathways.

(c) The length and width of the sanitary landfill facility dividing the facility into quarters (i.e. three cross-sections in each direction) showing the following:

[Comment: Additional cross-sections may be submitted.]

(i) Existing topography.

(ii) The proposed horizontal and vertical limits of excavation.

(iii) The horizontal limits, top elevations, and bottom elevations of existing waste and proposed areas of waste placement.

(iv) The horizontal limits, top elevations, and bottom elevations of the proposed composite cap system.

(d) If the permit to install application is for a vertical expansion, the following at an interval no greater

than every three hundred feet of length and width of the vertical expansion:

(i) Limits of existing waste with the date of the survey.

(ii) Approved and proposed limits of waste placement.

(iii) Separatory liner/leachate collection systems.

(6) Plan drawings showing the systematic development of each phase of the unit of the sanitary landfill facility. Each plan drawing numbered consecutively 6A, 6B, 6C, etc. shall show the phase, previously operated phases, the grid system established in accordance with paragraph (B)(4)(g) of this rule, and the following:

(a) The location of the following to be installed prior to accepting waste in the depicted phase.

(i) Ground water monitoring wells.

(ii) Piezometers.

(iii) Explosive gas permanent monitors, punch bar stations, and alarms.

(iv) Leachate collection and management structures.

(v) Surface water control structures.

(b) The extent of waste placement for that phase.

(c) The contours of any previously filled phases.

(d) The limits of final cover, transitional cover, and intermediate cover on the previously filled phases.

(e) The contours of the bottom limits of solid waste placement for the depicted phase.

(f) The location of access roads for the depicted phase.

(g) The permanent and temporary measures to be utilized to control surface water run-on and runoff, erosion, and any temporary or permanent ground water control structures.

(7) The following detail drawings shall be on plan drawings numbered consecutively 7A, 7B, 7C, etc.:

(a) Recompacted soil liner, flexible membrane liner, and geosynthetic clay liner if applicable, liner cushion layer, leachate collection layer, and filter layer; any engineered components that are constructed through the composite liner system; and the interface between phases.

(b) Composite cap system, including any engineered components that are constructed through the composite cap system, and surface water control structures.

(c) Relationship of the composite cap system to the leachate collection and management system and to the composite liner system.

(d) Leachate collection and management system elements including but not limited to the following:

(i) Leachate collection layer.

(ii) Collection pipes, including bedding media and boots.

(iii) Filter layer.

(iv) Sumps.

(v) Conveyance apparatus, including leachate lift stations.

(vi) Storage tanks and leachate ponds.

(e) Permanent ground water control structures, if applicable.

(f) Ground water monitoring well and piezometer construction.

(g) Explosive gas control system elements.

(h) Separatory liner/leachate collection systems, if applicable.

(i) Monocell or monofill separatory structures, if applicable.

(j) Sedimentation pond and discharge structures and surface water run-on and runoff control structures.

(k) Other necessary details including but not limited to structural fill for berms and subbase, gas collection layer, and transitional cover.

(C) Reports. The following information shall be presented in narrative form in a report with a table of contents and divided and labeled according to paragraphs (C)(1) to (C)(10) of this rule.

(1) Summary. Summary of the facility environs and a demonstration that the sanitary landfill facility will meet the criteria for permit approval as specified in rules 3745-27-02 and 3745-27-07 of the Administrative Code. The demonstration shall include a discussion of the current and previous owner's and current and previous operator's compliance with any authorizing document applicable to the facility, the facility's limits of waste placement, the location restriction demonstrations, and operational criteria.

(2) Variance and exemption requests. Any variance or exemption requests from the requirements contained in rules 3745-27-07 to 3745-27-12, 3745-27-14 to 3745-27-16, 3745-27-19, or 3745-27-20 of the Administrative Code.

(3) Site investigation. A hydrogeologic and geotechnical site investigation report, which shall include at a minimum the following:

(a) Sufficient information to allow the director to determine the suitability of the site for solid waste disposal through the following:

(i) Identification and characterization of the hydrogeology of the uppermost aquifer system and stratigraphic units that exist above the uppermost aquifer system.

(ii) Characterization of the site geology and hydrogeology to allow for the evaluation of the proposed design of the sanitary landfill facility and to ensure that it will be in compliance with the requirements of rules 3745-27-07 and 3745-27-10 of the Administrative Code.

[Comment: The narrative portion of the hydrogeologic and geotechnical report focuses on the siting and ground water monitoring issues. The subsurface investigation portion of the report also addresses geotechnical and design issues.]

(b) A description, based on publicly available information, of the regional geology and hydrogeology

within one mile of the proposed sanitary landfill facility. At a minimum, the description shall include the following:

[Comment: Publicly available information regarding unstable areas is placed in a separate section located in the geotechnical analysis in paragraph (C)(4) of this rule.]

(i) The identification and average yield of the regional aquifer system.

(ii) The direction of ground water flow in the regional aquifer system.

(iii) The identification of recharge and discharge areas of the regional aquifer system.

(iv) Regional stratigraphy, including any regional stratigraphic or structural features, such as the bedrock surface, bedrock dip, or joint systems, that may influence the ground water flow system.

(v) A description of the regional geomorphology, including the location of surface water bodies, floodplains, and a description of any topographic features that may influence the ground water flow system.

(c) The following documents:

(i) If any surface or underground mines were identified in accordance with paragraph (B)(2)(b)(ix) of this rule, a letter from the Ohio department of natural resources, division of mineral resources management or other appropriate agency verifying the type, mining method, location, depth, and status of the mine.

(ii) Documentation of who owns the mineral rights below the sanitary landfill facility.

(iii) If any oil or gas wells were identified in accordance with paragraph (B)(2)(b)(ix) of this rule, a letter from the Ohio department of natural resources or other appropriate agency verifying the type, location, depth, and status of the well.

(iv) A letter from the United States army corps of engineers agreeing with the wetland delineation, depicted on the plan drawing with the information pursuant to paragraph (B)(2)(a)(iv) of this rule, including confirmation of any isolated wetlands or if no wetlands are present.

(d) A detailed description and analysis of the geology and hydrogeology under the proposed sanitary landfill facility. This description shall be based on data collected using appropriate subsurface investigatory methods such as borings, piezometers, monitoring wells, tensiometers, geophysical surveys, soil gas surveys, dutch cone penetrometers, and test pits. At a minimum, the description and analysis shall include the following:

[Comment: This information may also be used in the geotechnical analysis pursuant to paragraph (C)(4) of this rule.]

(i) The consolidated and unconsolidated stratigraphic units from the ground surface down to the base of the uppermost aquifer system including the following:

(a) The following characteristics, composition, and features:

(i) For unconsolidated stratigraphic units, the textural classification in accordance with ASTM D2487.

(ii) For consolidated stratigraphic units, the rock type such as limestone, dolomite, coal, shale, siltstone, or sandstone.

(iii) Color.

(iv) Moisture content.

(v) Stratigraphic features such as layering, interbedding, or weathering.

(vi) Structural features such as fracturing or jointing.

(vii) Visible accessory minerals such as pyrite, calcite, or gypsum.

(viii) Hydraulic conductivity.

(b) Thickness.

(c) Lateral extent.

(d) Depth and elevation.

(e) Variations in texture, saturation, stratigraphy, structure, or mineralogy exhibited by each stratigraphic unit that could influence the ground water flow or quality in the uppermost aquifer system or any overlying zones of saturation.

(ii) The local geomorphology at the proposed sanitary landfill facility including surface water bodies or topographic features that may influence the ground water flow in the uppermost aquifer system or any overlying significant zones of saturation.

(iii) Any local structural geology features under the proposed sanitary landfill facility that may influence the ground water flow in the uppermost aquifer system or any overlying significant zones of saturation.

(iv) The uppermost aquifer system and significant zones of saturation above the uppermost aquifer system. This description shall include the depth to, and lateral and vertical extent of, the uppermost aquifer system and significant zones of saturation above the uppermost aquifer system. This description and analysis shall include but not be limited to the following:

(a) Temporal fluctuations in ground water levels over a period of time to determine the seasonal effects on ground water flow directions.

(b) An interpretation of the ground water flow system including hydraulic conductivity, rate of flow, direction of flow, vertical and lateral components of flow, and interconnections between and within the uppermost aquifer system and any significant zones of saturation above the uppermost aquifer system. This interpretation shall be described in both narrative and map form.

(c) Identification and characterization of recharge and discharge areas within the boundaries of the proposed sanitary landfill facility. This shall include any relationships of ground water with seeps, springs, streams, and other surface water features.

(d) Yield of any significant zones of saturation and of the uppermost aquifer system.

(v) If the applicant chooses, a site specific justification based on evidence gathered in accordance

with paragraph (C)(3)(b) of this rule, that an unconsolidated aquifer system capable of sustaining a yield of one hundred gallons per minute for a twenty-four-hour period is not located beneath the facility.

(e) A description and quantification of the ground water quality of the uppermost aquifer system and significant zones of saturation above the uppermost aquifer system. The description and quantification of ground water quality shall describe and quantify the rate, extent, and concentration of any ground water contamination located under the facility.

(f) Subsurface investigation information used to prepare the site investigation report narrative in accordance with paragraphs (C)(3)(b), (C)(3)(d) and (C)(3)(e) of this rule and the geotechnical analyses in accordance with paragraph (C)(4) of this rule. The submitted information shall be adequate to satisfy the performance standards of paragraphs (C)(3)(a) and (C)(4) of this rule. At a minimum, the information shall include the following:

[Comment: The narrative portion of the hydrogeologic and geotechnical report focuses on the siting and ground water monitoring issues. The subsurface investigation portion of the report also addresses geotechnical and design issues.]

(i) Publicly available information collected and used to prepare the site investigation report narrative in accordance with paragraph (C)(3)(b) of this rule and the plan sheets in accordance with paragraph (B)(2) of this rule. At a minimum, publicly available information includes the following:

(a) Well logs and, where applicable, the decommissioning records for public and private water supply wells within one mile of the proposed sanitary landfill facility.

(b) The Ohio department of natural resources county ground water resource maps or other appropriate regional hydrogeological data.

(c) Other publicly available information.

(ii) Information collected at the site for each stratigraphic unit from the surface to the bottom of the uppermost aquifer system or to one hundred and fifty feet below the proposed composite liner system, whichever is shallower. The information shall be used to prepare the site investigation report narrative in accordance with paragraph (C)(3)(d) of this rule. This information shall be presented on logs appropriate for the subsurface investigatory method used. At a minimum, the information shall include the following:

[Comment: The subsurface investigation conducted to provide the information pursuant to this paragraph may be combined with the subsurface investigation conducted to provide the information pursuant to paragraph (C)(3)(f)(v) of this rule.]

(a) The northing and easting location coordinates of the subsurface investigation site.

(b) Surface elevation surveyed to the nearest tenth of a foot.

(c) Depth interval for each stratigraphic unit.

(d) Field descriptions of the consolidated and unconsolidated units. At a minimum, the information shall include the following:

(i) Textural classification for each unconsolidated stratigraphic unit in accordance with

ASTM D2487.

(ii) Color.

(iii) Moisture content.

(iv) Stratigraphic features such as layering, interbedding, or weathering.

(v) Structural features such as fracturing or jointing.

(vi) Visible accessory minerals such as pyrite, calcite, or gypsum.

(vii) Rock type such as limestone, dolomite, coal, shale, siltstone or sandstone.

(viii) Thickness.

(ix) Variations in texture, saturation, stratigraphy, structure or mineralogy in each stratigraphic unit.

(e) Depth to saturation.

(f) Hydraulic conductivity, including the following:

(i) For saturated unconsolidated stratigraphic units, at least one field measurement of hydraulic conductivity per saturated unconsolidated unit and one additional measurement per saturated unconsolidated unit for each twenty acres.

(ii) For unconsolidated stratigraphic units, from which an undisturbed sample can be collected, at least one laboratory measurement of vertical hydraulic conductivity per unconsolidated unit and one additional measurement per unconsolidated unit for each twenty acres.

(iii) For saturated consolidated stratigraphic units, at least one field measurement of hydraulic conductivity per saturated consolidated unit and one additional measurement per saturated consolidated unit for each twenty acres.

[Comment: Most field methods for measuring hydraulic conductivity primarily evaluate lateral hydraulic conductivity, but also account for at least some effects of vertical hydraulic conductivity over the tested interval. In cases where laboratory measurements of vertical hydraulic conductivity are obtained for unconsolidated saturated units which are wholly or partially saturated, the vertical hydraulic conductivity should be compared to the field hydraulic conductivity to help evaluate the extent to which near-vertical fractures may be contributing to ground water flow through the unit. Hydraulic conductivity data should be interpreted with respect to the primary and secondary porosity features that are observed or are reasonably expected to occur in the investigated units, as well as the stratigraphic and structural features of the investigated units.]

(g) Yield of any significant zones of saturation and of the uppermost aquifer.

(h) If an unconsolidated aquifer system capable of sustaining a yield of one hundred gallons per minute for a twenty-four-hour period is suspected beneath the facility based on evidence gathered in accordance with paragraph (C)(4)(b) of this rule, and the applicant proposes to revise that finding, the applicant must provide adequate site-specific information on the suspected aquifer system to justify any requested revision including but not limited to the

yield of any aquifer systems below the uppermost aquifer system.

(iii) A construction diagram of each monitoring well and piezometer. At a minimum, the diagram shall include the following:

(a) The top-of-casing elevation used for water level measurement reference surveyed to the nearest hundredth foot.

(b) The boring diameter and the inside diameter of the well casing.

(c) The total depth of the boring and the total depth of the well.

(d) The screened interval depth and elevation, and the screen slot size.

(e) A description of construction materials and depth intervals for construction materials.

(iv) Data gathered by sampling and analyzing the ground water from the uppermost aquifer system and significant zones of saturation above the uppermost aquifer system. These samples shall at a minimum be analyzed for compounds 1 to 78 listed in appendix I to rule 3745-27-10 of the Administrative Code.

(v) Information collected at the site and used to prepare the geotechnical analysis in accordance with paragraph (C)(4) of this rule. This information shall be presented on logs appropriate for the subsurface investigatory method used. The subsurface investigatory method and frequency must be adequate to find the unconsolidated stratigraphic units susceptible to bearing capacity failure, static stability failure, seismic stability failure, or settlement at the site. The information shall be collected for each unconsolidated stratigraphic unit under the facility down to fifty feet below the proposed depths of excavation. At a minimum, the information shall include the following:

[Comment: Ohio EPA recommends a frequency of one subsurface investigatory site for every four acres on a more or less uniform grid across the site. However, for sites which are located in areas where landslides or mass movements of unconsolidated material have occurred, or are underlain by complex geology with multiple unconsolidated stratigraphic units, more borings may be necessary pursuant to paragraph (A)(1) of this rule. Sites that are located in areas with a consistent stratigraphy, which is supported by comprehensive and reliable information from previous studies, may use a lower frequency of borings. Ohio EPA recommends against boring through cap, existing waste, or liner to obtain this information. Other methods or increased borings around the landfill footprint should be used.]

[Comment: Given the objective of finding thin unconsolidated stratigraphic units susceptible to bearing capacity failure, static stability failure, seismic stability failure, or settlement, the unconsolidated stratigraphic units should be logged continuously, and the subsurface investigation may also need to go deeper if publicly available data gathered pursuant to paragraph (C)(4)(h) of this rule or if field data gathered pursuant to paragraph (C)(3)(d)(i) of this rule indicate that deeper susceptible units exist.]

[Comment: The subsurface investigation conducted to provide the information pursuant to this paragraph may be combined with the subsurface investigation conducted to provide the information pursuant to paragraph (C)(3)(f)(ii) of this rule.]

(a) Northing and easting location coordinates.

(b) Surface elevation surveyed to the nearest tenth of a foot.

(c) Depth interval for each stratigraphic unit.

(d) Field descriptions of the unconsolidated units. At a minimum, the information shall include the following:

(i) Textural classification for each unconsolidated stratigraphic unit in accordance with ASTM D2487.

(ii) Color.

(iii) Moisture content.

(iv) Stratigraphic features such as layering, interbedding, or weathering.

(v) For fine-grained unconsolidated units, field descriptions of consistency and plasticity or dilatancy.

(vi) Thickness.

(vii) Variations in texture, saturation, stratigraphy, structure, or mineralogy in each stratigraphic unit.

(e) Identification of the depth interval of any samples collected including those submitted for laboratory testing.

(f) Depth to phreatic and piezometric surfaces.

[Comment: "Phreatic surface" is synonymous with the term "water table" and "piezometric surface" is synonymous with the term "potentiometric surface." Hydrogeologic investigations generally use "water table" for a water level surface in an unconfined saturated unit and "potentiometric surface" for the pressure head surface associated with a confined saturated unit. In hydrogeologic applications, the "water table" is considered a special type of potentiometric surface where the head pressure is equal to atmospheric pressure.]

[Comment: Any piezometric surfaces associated with bedrock that may affect the facility during excavation or construction may also be identified.]

(g) Results from penetration testing in accordance with ASTM D1586, plus the corrected and normalized standard penetration number or results from mechanical cone penetration testing in accordance with ASTM D3441.

(vi) Laboratory analysis on representative samples of each unconsolidated stratigraphic units under the facility down to a minimum of fifty feet below the proposed depths of excavation. The information shall be used to prepare the geotechnical analysis in accordance with paragraph (C)(4) of this rule. At a minimum, the information shall include the following:

[Comment: Undisturbed samples from at least ten per cent of the borings passing through each susceptible unit or a minimum of three, whichever is greater, should be collected to provide representative data.]

(a) Grain size distribution.

(b) Atterberg limits.

(c) Specific gravity.

(d) In situ unit weight.

(e) In situ moisture content.

(f) Dry unit weight.

(g) For unconsolidated stratigraphic units susceptible to bearing capacity failure, the effective drained or undrained peak shear strength parameters, as appropriate, in accordance with ASTM D2850, ASTM D4767, or ASTM D6467.

(h) For unconsolidated stratigraphic units susceptible to static stability failure or seismic stability failure, the effective shear strength in accordance with ASTM D4767 or ASTM D6467.

(i) For unconsolidated stratigraphic units susceptible to static stability failure or seismic stability failure due to excessive increase in pore pressures from construction and operation activities, the undrained shear strength using fully saturated samples determined in accordance with ASTM D2850.

(j) For unconsolidated stratigraphic units susceptible to settlement, the following parameters:

(i) The coefficient of consolidation.

(ii) The over consolidation ratio.

(iii) The pre-consolidation pressure.

(iv) The compression index.

(v) The swelling index.

(vi) The in situ void ratio.

(vii) The effective porosity.

(vii) Representative samples of each unconsolidated stratigraphic units susceptible to seepage piping failure be tested in accordance with ASTM D4647. Units susceptible to seepage piping failure include those located within fifteen feet of the proposed depths of excavation and those located where the piezometric surface of an aquifer or a zone of significant saturation is higher than the depth of excavation.

(viii) Any other data generated.

(g) A detailed description of how the subsurface investigation was conducted including the following:

(i) The subsurface investigatory and sampling methods used in characterizing the geologic and hydrogeologic properties of the consolidated and unconsolidated stratigraphic units at the proposed sanitary landfill facility and an explanation of why the particular subsurface investigatory method was chosen.

(ii) The analytical procedures and methodology used to characterize the unconsolidated and consolidated materials obtained from test pits and borings.

(iii) The methodology, equipment, and procedures used to define the uppermost aquifer system and

significant zones of saturation above the uppermost aquifer system, including the following:

(a) Well and piezometer construction specifications.

(b) Water level measurement.

(iv) The methodology, equipment, and procedures used to determine the ground water quality in the uppermost aquifer system and any significant zones of saturation above the uppermost aquifer system, including the following:

(a) Detection of immiscible layers.

(b) Collection of ground water samples, including the following:

(i) Well evacuation.

(ii) Sample withdrawal.

(iii) Sample containers and handling.

(iv) Sample preservation.

(c) Performance of field analysis, including the following:

(i) Procedures and forms for recording data and the exact location, time, and facility-specific considerations associated with the data acquisition.

(ii) Calibration of field devices.

(d) Decontamination of equipment.

(e) Analysis of ground water samples.

(f) Chain of custody control, including the following:

(i) Standardized field tracking reporting forms to record sample custody in the field prior to and during shipment.

(ii) Sample labels indicating a unique sample number, date, time, sample media, sample type, analytical methods, any preservatives, and any other information necessary for effective sample tracking.

(g) Field and laboratory quality assurance and quality control including the following, the number of which shall be enough to adequately demonstrate the accuracy of the analysis results:

(i) Collection of duplicate samples.

(ii) Submission of field-bias blanks.

(iii) Potential interferences.

(4) Geotechnical analysis. The following analyses shall provide sufficient information to allow Ohio EPA to characterize the facility geology to allow for the evaluation of the proposed design of the sanitary landfill facility.

(a) The hydrostatic uplift analysis shall include the following:

(i) The scope, extent, and findings of the subsurface investigation conducted in accordance with paragraph (C)(3) of this rule, as it pertains to hydrostatic uplift.

(ii) A narrative description of the rationale used for the selection of the analysis input parameters.

(iii) A description of the method used to calculate hydraulic uplift.

(iv) A description of the assessed failure modes and conditions.

(v) A narrative description of the rationale used for the selection of the critical cross section that at a minimum shall consider the worst case intersection of the highest phreatic or piezometric surface with the maximum excavation depth.

(vi) A plan drawing showing the temporal high phreatic and piezometric surfaces derived in accordance with paragraph (B)(3)(c) of this rule and the horizontal and vertical limits of excavation derived in accordance with paragraph (B)(4)(a) of this rule.

(vii) A profile view of the critical area that fully depicts the analysis input model including the following:

(a) The material boundaries.

(b) The applicable dimensions, including but not limited to the depth of excavation, and depth to the temporal high phreatic and piezometric surfaces.

(c) The material types.

(d) The in situ unit weights and saturated unit weights.

(viii) The actual calculations or computer output.

(b) The bearing capacity analysis for any vertical sump risers on the composite liner system shall include the following:

(i) The scope, extent, and findings of the subsurface investigation conducted in accordance with paragraph (C)(3) of this rule, as it pertains to bearing capacity.

(ii) A narrative description of the rationale used for the selection of the analysis input parameters.

(iii) A description of the method used to calculate bearing capacity.

(iv) A description of the assessed failure modes and conditions.

(v) A profile view of the critical cross section that fully depicts the analysis input model including the following:

(a) The material boundaries.

(b) The temporal high piezometric surface.

(c) The material types.

(d) The in situ unit weights and saturated unit weights.

(vi) The plan view of the critical cross section including northings and eastings for the endpoints of the section.

(vii) The actual calculations or computer output.

(c) The static stability analysis shall include the following:

(i) The scope, extent, and findings of the subsurface investigation conducted in accordance with paragraph (C)(3) of this rule, and earthen materials testing program as it pertains to static stability.

(ii) A narrative description of the rationale used for the selection of the analysis input parameters.

(iii) A description of the method used to calculate static stability.

(iv) An assessment of failure modes and conditions that at a minimum should include the following:

(a) Deep-seated translational and rotational failure mechanisms of internal slopes, interim slopes, and final slopes for drained conditions and, as applicable, undrained conditions.

(b) Shallow translational and rotational failure mechanisms of internal slopes and final slopes for saturated conditions and drained conditions.

(v) For each of the failure modes and conditions assessed, a narrative description of the rationale used for the selection of the critical cross sections for the internal slopes, interim slopes, and final slopes.

(vi) A profile view of the critical cross sections that fully depicts the analysis input model including the following:

(a) The material boundaries.

(b) The temporal high phreatic and piezometric surfaces.

(c) The material types.

(d) The in situ unit weights and, where applicable, the in situ saturated unit weights.

(e) The material shear strengths.

(vii) The plan view of the critical cross sections that includes the northings and eastings for the endpoints of the sections.

(viii) A summary of the results using two dimensional limit equilibrium methods or other methods acceptable to Ohio EPA for each of the critical cross sections.

(ix) The actual calculations or computer output.

(d) The seismic stability analysis shall include the following:

(i) The scope, extent, and findings of the subsurface investigation conducted in accordance with paragraph (C)(3) of this rule, and earthen materials testing program as it pertains to seismic stability.

(ii) A narrative description of the rationale used for the selection of the analysis input parameters.

(iii) A description of the method used to calculate the seismic stability.

(iv) An assessment of failure modes and conditions that at a minimum include the following:

(a) Deep-seated translational and rotational failure mechanisms of final slopes for drained conditions.

(b) Deep-seated translational and rotational failure mechanisms of internal slopes and interim slopes for drained conditions, if required by Ohio EPA.

(c) Shallow translational and rotational failure mechanisms of final slopes for drained conditions.

(d) Liquefaction failure mechanisms of internal slopes, interim slopes, and final slopes.

(v) For each of the failure modes and conditions, a narrative description of the rationale used for the selection of the critical cross sections for the internal slopes, interim slopes, and final slopes.

(vi) The profile views of the critical cross sections that fully depict the analysis input model including the following:

(a) The material boundaries.

(b) The temporal high phreatic and piezometric surfaces.

(c) The material types.

(d) The in situ unit weights and, where applicable, the in situ saturated unit weights.

(e) The material shear strengths.

(vii) The plan views of the critical cross sections that include the northings and eastings for the endpoints of the sections.

(viii) A summary of the results using two or three dimensional limit equilibrium methods or other methods acceptable to Ohio EPA for each of the critical cross sections.

(ix) The actual calculations or computer output.

(e) The settlement analyses of the composite liner system shall include the following:

(i) The scope, extent, and findings of the subsurface investigation conducted in accordance with paragraph (C)(3) of this rule, and earthen materials testing program as it pertains to settlement.

(ii) A narrative description of the rationale used for the selection of the analysis input parameters.

(iii) A description of the method used to calculate the settlement.

(iv) A description of the assessed failure modes and conditions.

(v) A summary of the results.

(vi) The actual calculations of settlement or computer output.

(f) The seepage piping failure analyses where the piezometric surface of an underlying aquifer or zone of saturation is above the in situ foundation, added geologic material, and recompacted soil liner shall

include the following for the relevant layer:

(i) The scope, extent, and findings of the subsurface investigation conducted in accordance with paragraph (C)(3) of this rule pertaining to seepage piping failure through in situ foundation.

(ii) A narrative description of the rationale used for the selection of the analysis input parameters.

(iii) A description of the method used to calculate likelihood of seepage piping failure through in situ foundation or added geologic material or recompacted soil liner.

(iv) A description of the assessed failure modes and conditions.

(v) A narrative description of the rationale used for the selection of the critical cross section that at a minimum considers the worst-case intersection of the highest phreatic or piezometric surface with the maximum excavation depth.

(vi) A plan drawing showing the temporal high phreatic and piezometric surfaces derived in accordance with paragraph (B)(3)(d) of this rule and the horizontal and vertical limits of excavation derived in accordance with paragraph (B)(4)(a) of this rule.

(vii) A profile view of the critical area that fully depicts the analysis input model including the following:

(a) The material boundaries.

(b) The applicable dimensions including but not limited to the depth of excavation, and depth to the temporal high phreatic and piezometric surfaces.

(c) The material types.

(d) The in situ unit weights and saturated unit weights.

(viii) The actual calculations or computer output.

(g) If a separatory liner is used and is designed with a slope other than that specified by rule 3745-27-08 of the Administrative Code, the settlement analysis of the separatory liner shall include the following:

(i) A narrative description of the rationale used for the selection of the analysis input parameters.

(ii) A description of the method used to calculate the settlement.

(iii) A description of the assessed failure modes and conditions.

(iv) A summary of the results.

(v) The actual calculations of settlement or computer output.

(h) A description, based on publicly available information, of any of the following unstable areas within one mile of the limits of solid waste placement. If the sanitary landfill facility is located in an unstable area, the applicant shall provide an analysis that the structural components will maintain their integrity based on the findings of the subsurface investigation conducted in accordance with paragraph (C)(3) of this rule.

(i) Regional stratigraphic or structural features that are susceptible to bearing capacity failure, static

stability failure, seismic stability failure, or settlement.

(ii) Areas susceptible to liquefaction.

(iii) Areas susceptible to mass movement such as landslides, debris slides and falls, and rock falls.

(iv) Areas impacted by natural and human induced activities such as cutting and filling, draw down of ground water, rapid weathering, heavy rain, seismic activity and blasting.

(v) Presence of karst terrain.

(vi) Presence of underground mining.

(vii) Areas susceptible to coastal and river erosion.

(5) Calculations. The following design calculations with references to equations used, showing site-specific input and assumptions that demonstrate compliance with the design requirements of rule 3745-27-08 of the Administrative Code:

(a) Calculations showing gross volume of the sanitary landfill facility in cubic yards, the anticipated life of the sanitary landfill facility in years, the gross volume of each unit in cubic yards, and the anticipated life of each unit in years.

(b) If a geotextile cushion layer is necessary to protect the flexible membrane liner from puncture and excessive strain due to the force exerted on the granular drainage layers, calculations for mass per unit area of the geotextile cushion layer accounting for the weight of the overlying waste mass.

(c) Calculations for leachate head and flow.

(d) If leachate is to be recirculated, calculations for amount of leachate to be recirculated and the leachate head and flow.

(e) Calculations for sizing any leachate storage tanks based on the volume of leachate generated after final closure.

(f) Pump size and pipe size calculations based on paragraphs (C)(5)(c) and (C)(5)(d) of this rule.

(g) Pipe strength and pipe deflection calculations for the leachate collection and management system.

(h) An itemized written final closure cost estimate, in current dollars, based on the following:

(i) The cost of final closure of a sanitary landfill facility in accordance with rule 3745-27-11 of the Administrative Code.

(ii) A third-party conducting the final closure activities, assuming payment to employees of not less than the applicable prevailing wage.

(i) An itemized written post-closure care cost estimate, in current dollars, based on the following:

(i) The cost of post-closure care of the unit of the sanitary landfill facility in accordance with rule 3745-27-14 of the Administrative Code.

(ii) A separate estimate for each noncontiguous unit of the sanitary landfill facility.

(iii) A third-party conducting the post-closure care activities, assuming payment to its employees of

not less than the applicable prevailing wage.

(j) Soil erosion calculations.

(k) Calculations for sizing surface water control structures and verifying that scouring and crushing is minimized.

(l) Sedimentation basin calculations.

(m) Other relevant calculations.

(6) Location restriction demonstrations. For a proposed new unit, the location restriction demonstrations in accordance with rule 3745-27-20 of the Administrative Code.

(7) Construction information. A discussion of the following construction information:

(a) Installation of the items specified in rule 3745-27-10 of the Administrative Code.

(b) Demonstration of physical and chemical resistance pursuant to paragraphs (D)(10) and (D)(13) of rule 3745-27-08 of the Administrative Code.

(c) Compaction equipment slope limitations.

(8) Operational information. The following statements, which if modified, could require a permit:

(a) The authorized maximum daily waste receipt requested for the sanitary landfill facility.

(b) The technique of waste receipt including but not limited to acceptance of baled waste or loose waste.

(c) The type of waste to be received including but not limited to municipal solid waste, industrial solid waste, residual solid waste, asbestos or asbestos containing waste that is subject to the provisions of NESHAP, 40 CFR Part 61, subpart M (1984) or construction and demolition debris.

(d) The type of equipment to be used to construct, operate, and maintain the sanitary landfill facility.

[Comment: A change in equipment that decreases the capability of the owner or operator to handle the waste received may be considered to endanger human health and may require a permit.]

(9) Plans. The following plans:

(a) The ground water monitoring plan for detection monitoring in accordance with rule 3745-27-10 of the Administrative Code.

(b) The explosive gas monitoring plan in accordance with rule 3745-27-12 of the Administrative Code.

(c) The quality assurance/quality control plan for the engineered components addressing the following:

(i) Surveying.

(ii) Calibration of testing equipment.

(iii) Sampling and testing procedures to be used in the field and in the laboratory and the testing frequency, parameters, and sample locations. Sampling and testing procedures shall include but not be limited to the following:

(a) Testing pursuant to rule 3745-27-08 of the Administrative Code.

(b) Testing necessary due to design requirements.

(c) Voluntary testing.

(iv) Installation procedures and installer qualifications.

[Comment: Installer qualifications for flexible membrane liner are found in paragraph (D)(10)(e) of rule 3745-27-08 of the Administrative Code.]

(v) Procedures to be followed if a test fails.

(d) The "final closure/post-closure plan" as detailed in paragraph (B) of rule 3745-27-11 of the Administrative Code.

(10) Notifications and certification. The application shall include the following:

(a) Letters of intent to establish or modify a sanitary landfill facility, which include a description of property and facility boundaries, shall be sent via certified mail or any other form of mail accompanied by a receipt to the following entities (copies of these letters of intent with copies of the mail receipts shall be included with the application):

(i) The governments of the general purpose political subdivisions where the sanitary landfill facility is located, e.g., county commissioners, legislative authority of a municipal corporation, or the board of township trustees.

(ii) The single county or joint county solid waste management district.

(iii) The owner or lessee of any easement or right-of-way bordering or within the proposed facility boundaries that may be affected by the proposed sanitary landfill facility.

(iv) The local zoning authority having jurisdiction, if any.

(v) The airport administrator and the federal aviation administration, if the placement of solid waste will occur within five miles of any airport runway.

(vi) The park system administrator, if any part of the sanitary landfill facility is located within or shares the park boundary.

(vii) The conservancy district, if any part of the sanitary landfill facility is located within or shares the conservancy district boundary.

(b) A list of the permits, licenses, plan approvals, authorizations or other approvals that have been applied for and the local, state, or federal office or agency where application has been made.

(c) Wetland demonstration. Applications that propose to locate the sanitary landfill facility in wetlands shall include a copy of a certification and permit approved in accordance with section 401 and 404 of the "Clean Water Act" or other permit or certification authorizing the discharge of dredge or fill material under state law.

(d) Proof of property ownership or lease agreement to use the property as a sanitary landfill facility.

Effective: 4/4/2024

Five Year Review (FYR) Dates: 1/1/2026

CERTIFIED ELECTRONICALLY

Certification

03/18/2024

Date

Promulgated Under:	119.03
Statutory Authority:	3734.02, 3734.12
Rule Amplifies:	3734.02, 3734.05, 3734.12
Prior Effective Dates:	07/29/1976, 03/01/1990, 06/01/1994, 08/15/2003, 07/01/2004, 01/01/2021

3745-27-07 Additional criteria for approval of sanitary landfill facility permit to install applications.

(A) General criteria. The director shall not approve a permit to install application for a sanitary landfill facility unless the director determines all of the following:

(1) Establishment or modification and operation of the sanitary landfill facility will not violate Chapter 3704., 3734., or 6111. of the Revised Code.

(2) The sanitary landfill facility will be capable of being constructed, operated, closed, and maintained during the post-closure care period in accordance with this chapter, and with the terms and conditions of the permit.

(3) The applicant, or person listed as owner and operator if the owner and operator are not the applicant, who has been or is currently responsible for the management or operation of one of more solid waste facilities, has managed or operated such facility in substantial compliance with applicable provisions of Chapters 3704., 3714., 3734., and 6111. of the Revised Code and any rules, permits or other authorizations issued thereunder, and has maintained substantial compliance with all applicable orders issued by the director, the environmental review appeals commission, or courts having jurisdiction in accordance with Chapter 3746-13 of the Administrative Code, in the course of such previous or current management or operations. The director may take into consideration whether substantial compliance has been maintained with any applicable order from a board of health maintaining a program on the approved list and any other courts having jurisdiction.

(4) The applicant meets the requirements of sections 3734.40 to 3734.44 of the Revised Code and rules adopted thereunder.

(5) Disposal of secondary aluminum waste will occur only in a monocell or monofill that has been permitted for that purpose. Secondary aluminum waste is defined in division (O) of section 3734.02 of the Revised Code.

(B) Discretionary criteria. The director may consider, when determining whether or not to approve a permit to install application for a sanitary landfill facility, the following:

(1) The impact the establishment or modification of the sanitary landfill facility may have on corrective measures that have been taken, are presently being taken, or are proposed to be taken at the facility or in the immediate area.

(2) The technical ability of the owner or operator to adequately monitor the impact of the sanitary landfill facility on the environment.

(C) Design criteria. The director shall not approve a permit to install application unless the director determines that the application conforms to the appropriate paragraphs of rule 3745-27-08 of the Administrative Code as follows:

(1) Proposed new unit of a new landfill or proposed new unit contiguous or noncontiguous to an existing landfill shall comply with paragraphs (B) to (D) of rule 3745-27-08 of the Administrative Code.

[Comment: This requirement does not apply to a new unit designated on June 1, 1994 that is within a previously authorized fill area. Construction in an existing unit and new unit designated as of June 1, 1994, must be in accordance with the applicable authorizing document, including a plan approval, operational report, or permit to install. See paragraph (C) of rule 3745-27-19 of the Administrative Code. Unfilled areas of an existing unit and new unit designated as of June 1, 1994, and not provided

with a bottom liner/leachate collection system in accordance with paragraph (D) of rule 3745-27-08 of the Administrative Code are subject to paragraph (C) of rule 3745-27-19 and paragraph (A) of rule 3745-27-20 of the Administrative Code.]

(2) At a minimum, a proposed vertical expansion shall comply with the following:

(a) If the expansion is above the authorized fill area of the sanitary landfill facility, paragraphs (B)(1)(a) and (B)(1)(e) to (B)(1)(h), paragraph (B)(2) as applicable, paragraph (B)(3) as applicable, paragraphs (C)(1)(c) and (C)(1)(d) as applicable, (C)(2) as applicable, paragraphs (C)(4) to (C)(7), and paragraphs (D)(1) to (D)(3), (D)(11), (D)(13)(b) to (D)(13)(d), and (D)(18) to (D)(25) of rule 3745-27-08 of the Administrative Code.

(b) Paragraphs (B) to (D) of rule 3745-27-08 of the Administrative Code if the vertical expansion is below the authorized fill area of the sanitary landfill facility.

[Comment: If a landfill is permitted to vertically expand below a previously approved, but unfilled, area, that area must be constructed in accordance with current rule requirements.]

(3) Vertical expansion construction. For a permit application submitted after the effective date of this rule that includes a vertical expansion over an authorized fill area, the expansion area shall be constructed over either of the following:

(a) A separatory liner system constructed in accordance with rule 3745-27-08 of the Administrative Code.

(b) An authorized fill area that is underlain by a composite liner or engineered liner previously approved by the director and a leachate collection system.

(4) A permit to install application exclusively requesting a change in technique of waste receipt, type of waste received, or type of equipment used need not comply with rule 3745-27-08 of the Administrative Code.

(5) A permit to install application exclusively requesting a change in the authorized maximum daily waste receipt and submitted pursuant to paragraph (E) of this rule need not comply with rule 3745-27-08 of the Administrative Code.

(6) Other modifications of a sanitary landfill facility shall comply with the applicable paragraphs of rule 3745-27-08 of the Administrative Code.

(D) [Reserved.]

(E) Additional criteria for authorized maximum daily waste receipt increase applications.The director shall not approve a permit to install application for a permanent change in the authorized maximum daily waste receipt for the sanitary landfill facility unless the owner or operator demonstrates that the sanitary landfill facility can operate in compliance with all applicable solid waste regulations while receiving the requested maximum daily waste receipt. At a minimum, an adequate demonstration for a sanitary landfill facility includes the following:

(1) An explanation of the overall site design including construction time frames and fill sequences for the sanitary landfill facility.

(2) Operational criteria such as the sanitary landfill facility's equipment availability, cover availability, and manpower.

(3) If applicable, the owner's or operator's previous compliance history throughout the life of the sanitary

landfill facility and the daily logs for any period that the sanitary landfill facility was out of compliance.

[Comment: An application for a temporary increase in the authorized maximum daily waste receipt must satisfy the criteria specified in rule 3745-37-14 of the Administrative Code.]

(F) Applicability of location restriction demonstrations to a proposed new unit. A permit to install application for a proposed new unit shall not be approved unless the director determines that the owner or operator has demonstrated compliance with the location restriction demonstration requirements specified in rule 3745-27-20 of the Administrative Code.

(G) Applicability of siting criteria. The director shall not approve the permit to install application for a sanitary landfill facility unless the director determines that the application meets the criteria specified in paragraph (H) of this rule. For the purposes of this rule, an "authorized fill area" is an area within the limits of solid waste placement of a sanitary landfill facility that is authorized by a permit to install, plan approval, operational report, or other authorizing document to accept solid waste as of the date of submittal of the permit to install application for a new unit. Applicability of siting criteria is as follows:

(1) Operation changes. A permit to install application that exclusively proposes a substantial change in technique of waste receipt, type of waste received, or type of equipment used at the sanitary landfill facility need not comply with the criteria specified in paragraph (H) of this rule.

(2) Authorized maximum daily waste receipt increase. A permit to install application that exclusively proposes a change in the authorized daily waste receipt limit for the sanitary landfill facility need not comply with the criteria specified in paragraph (H) of this rule.

(3) Other modification permits. A permit to install application that incorporates a modification of the sanitary landfill facilitythat does not incorporate a capacity increase or otherwise change the vertical or horizontal limits of waste placement need not comply with the criteria specified in paragraph (H) of this rule.

(4) Vertical expansion.

(a) For the proposed vertical expansion and all waste within the vertical projection above or below the proposed vertical expansion, the criteria specified in paragraph (H) of this rule apply except for paragraph (H)(4) of this rule.

(b) For the areas of the authorized fill area that are contiguous to the proposed vertical expansion but that are not directly above or below the proposed vertical expansion, the following apply:

(i) Paragraph (H)(1) of this rule.

(ii) Paragraph (H)(2) of this rule.

[Comment: See diagram 1 in appendix I to this rule. Vertical expansion permits seek a voluntary vertical change in waste placement boundaries. A decision for final denial of a voluntary vertical expansion permit application does not alter the current authorizing document for the facility. Filling may continue in the authorized fill area in accordance with the applicable authorizing document.]

(5) Proposed new unit. A proposed new unit of a sanitary landfill facility shall meet all of the criteria specified in paragraph (H) of this rule. The director may approve the application for one or more noncontiguous proposed new units that meet the criteria specified in paragraph (H) of this rule, even if other proposed new units do not meet the criteria specified in paragraph (H) of this rule.

[Comment: If a proposed new unit is an expansion to the authorized fill area of an existing landfill, see paragraph (G)(6) of this rule for the applicability of siting criteria to the authorized fill area of the existing landfill.]

(6) Authorized fill area contiguous or noncontiguous to a proposed new unit.

(a) Noncontiguous authorized fill area. When evaluating a proposed new unit, the criteria specified in paragraph (H) of this rule do not apply to an authorized fill area that is noncontiguous with the new unit proposed in the permit to install application.

[Comment: For a permit to install application proposing a new unit at the facility that is not contiguous to the the current authorized fill area, all siting criteria would apply to the new unit and no siting criteria would apply to the authorized fill area. See diagram 2 in appendix I to this rule.]

(b) Contiguous authorized fill area. For a permit to install application that includes a proposed contiguous new unit without a vertical expansion above or below some or all of the authorized fill areas, paragraphs (H)(1) and (H)(2) of this rule apply to the authorized fill area contiguous to the new unit.

(c) Contiguous new unit, authorized fill area, and vertical expansion. For a permit to install application that includes a proposed contiguous new unit and a vertical expansion above or below some or all of the authorized fill area, the following apply:

(i) For the vertical expansion component of the permit to install application, paragraph (G)(4) of this rule.

(ii) For the proposed new unit component of the permit to install application and the authorized fill area, paragraph (G)(5) of this rule.

[Comment: See diagram 3 in appendix I to this rule. If the vertical expansion component does not meet the criteria specified in paragraph (G)(4) of this rule, then the applicant may consider revising the application to meet the requirements specified in paragraph (G)(6)(b) of this rule. A final denial decision on this voluntary permit does not alter the filling approved in the authorized fill area.]

(H) Siting criteria.

(1) National parks, national recreation areas, and state parks.

(a) The limits of solid waste placement of the sanitary landfill facility are not located within one thousand feet of or within any of the following areas, in existence on the date of receipt of the permit to install application by Ohio EPA:

(i) National park or recreation area.

(ii) Candidate area for potential inclusion in the national park system.

(iii) State park or established state park purchase area.

(iv) Any property that lies within the boundaries of a national park or national recreation area but that has not been acquired or is not administered by the secretary of the United States department of the interior.

(b) The one-thousand-foot setback from the limits of solid waste placement does not apply if the applicant obtains a written authorization from the owner and the designated authority of the areas identified in paragraph (H)(1) of this rule to locate the limits of solid waste placement within one thousand feet. Such authorizations must be effective prior to the issuance date of the permit.

[Comment: Pursuant to division (M) of section 3734.02 of the Revised Code, the limits of solid waste placement cannot be located within the areas identified in paragraph (H)(1) of this rule.]

(c) Paragraph (H)(1)(a) of this rule shall not apply to a sanitary landfill facility located within a park or recreation area that exclusively disposes of wastes generated within the park or recreation area.

(2) Ground water aquifer system protection.

(a) Sand or gravel pit. The limits of solid waste placement of the sanitary landfill facility and any subsurface leachate storage structure or leachate lift station are not located in a sand or gravel pit where the sand or gravel deposit has not been completely removed. For the purposes of this paragraph, a sand or gravel pit is an excavation resulting from a mining operation where the removal of sand or gravel is undertaken for use in another location or for commercial sale. This term does not include excavations of sand or gravel resulting from the construction of the sanitary landfill facility.

(b) Limestone or sandstone quarry. The limits of solid waste placement of the sanitary landfill facility and any subsurface leachate storage structure or leachate lift station are not located in a limestone quarry or sandstone quarry. For the purposes of this paragraph, a limestone or sandstone quarry is an excavation resulting from a mining operation where limestone or sandstone is the principal material excavated for use in another location or for commercial sale. This term does not include excavation of limestone resulting from the construction of the sanitary landfill facility.

(c) Sole source aquifer. The limits of solid waste placement of the sanitary landfill facility and any subsurface leachate storage structure or leachate lift station are not located above an aquifer declared by the federal government under the "Safe Drinking Water Act," 42 U.S.C 300f et. seq., to be a sole source aquifer prior to the date of receipt of the permit to install application by Ohio EPA.

(d) One hundred gallons per minute (gpm) aquifer system. The limits of solid waste placement of the sanitary landfill facility and any subsurface leachate storage structure or leachate lift station are not located above an unconsolidated aquifer system capable of sustaining a yield of one hundred gallons

per minute for a twenty-four-hour period within one thousand feet of the limits of solid waste placement or any subsurface leachate storage structure or leachate lift station.

(e) Isolation distance. The isolation distance between the uppermost aquifer system and the following are not less than fifteen feet, without accounting for compression or consolidation, of in-situ or added geologic material constructed in accordance with rule 3745-27-08 of the Administrative Code:

(i) The basal elevation of the liner system.

(ii) The basal elevation of any subsurface leachate storage structure or leachate lift station.

(3) Ground water setbacks.

(a) Drinking water source protection area for a public water supply using ground water. The limits of solid waste placement of the sanitary landfill facility and any subsurface leachate storage structure or leachate lift station are not located within a drinking water source protection area for a public water supply using ground water.

(b) Underground mine. The limits of solid waste placement of the sanitary landfill facility and any subsurface leachate storage structure or leachate lift station are not located within an area of potential subsidence due to an underground mine in existence on the date of receipt of the permit to install application by Ohio EPA unless the potential impact due to subsidence is minimized. The area of potential subsidence due to an underground mine is the area defined by the angle of draw, extending from the underground mine to where the angle of draw intercepts the ground surface. The angle of draw shall not be less than fifteen degrees.

[Comment: Removal or filling of the mines is an acceptable method for minimizing the potential for subsidence.]

(c) One thousand feet from water supply well. The limits of solid waste placement of the sanitary landfill facility and any subsurface leachate storage structure or leachate lift station are not located within one thousand feet of a water supply well or a developed spring in existence on the date the permit to install application was received by Ohio EPA. For the purposes of this paragraph, a developed spring is any spring that has been permanently modified by the addition of pipes or a collection basin to facilitate the collection and use of the spring water. This paragraph does not apply if one or more of the following conditions are met:

(i) The water supply well or developed spring is controlled by the owner or operator of the sanitary landfill facility and provided the following:

(A) The water supply well or developed spring is needed as a source of nonpotable water in order to meet the requirements of the approved permit.

(B) No other reasonable alternative water source is available.

(C) The water supply well or developed spring is constructed to prevent contamination of the ground water.

(ii) The water supply well or developed spring is not less than five hundred feet hydrogeologically upgradient of the limits of solid waste placement of the sanitary landfill facility and the applicant demonstrates that the potential for migration of landfill gas to that well or developed spring is minimized.

[Comment: Constructing a landfill with a composite bottom liner system or an active gas management system are acceptable means to minimize the potential for gas migration.]

(iii) The water supply well or developed spring is separated from the limits of solid waste placement of the sanitary landfill facility by a naturally occurring hydrogeologic barrier.

(iv) The water supply well or developed spring was constructed and is used solely for monitoring ground water quality.

(4) General setbacks.

(a) One thousand feet from natural areas. The limits of solid waste placement of the sanitary landfill facility are not located with one thousand feet of the following, that are in existence on the date of receipt of the permit to install application by Ohio EPA:

(i) Areas designated by the Ohio department of natural resources as either a state nature preserve including all lands dedicated under the Ohio natural areas law, a state wildlife area, or a state wild, scenic, or recreational river.

(ii) Areas designated, owned, and managed by the Ohio history connection as a nature preserve.

(iii) Areas designated by the United States department of the interior as either a national wildlife refuge or a national wild, scenic, or recreational river.

(iv) Areas designated by the United States forest service as either a special interest area or a research natural area in the Wayne national forest.

(v) Stream segments designated by Ohio EPA as a state resource water, a coldwater habitat, or an exceptional warmwater habitat.

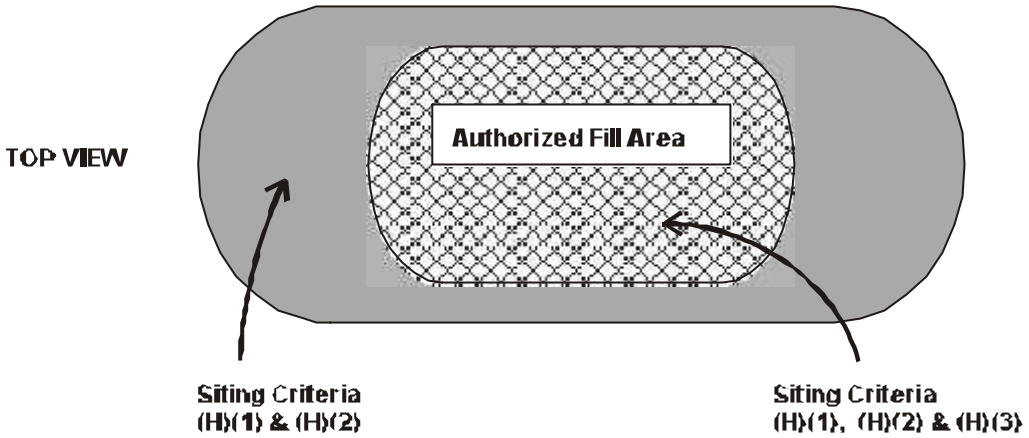
[Comment: Stream segments designated as state resource waters may include some wetlands. Those wetlands that do not meet this designation are addressed in paragraph (H)(4)(d) of this rule.]

(b) Three hundred feet from property line. The limits of solid waste placement of the sanitary landfill facility and any leachate pond are not located with three hundred feet of the sanitary landfill facility's property line.

(c) One thousand feet from domicile. The limits of solid waste placement of the sanitary landfill facility are not located within one thousand feet of a domicile, whose owner has not consented in writing to the location of the sanitary landfill facility, in existence on the date of receipt of the permit to install application by Ohio EPA.

(d) Two hundred feet from surface waters. The limits of solid waste placement of the sanitary landfill facility and any subsurface leachate storage structure are not located within two hundred feet of areas determined by Ohio EPA or the United States army corps of engineers to be a stream, lake, or wetland.

APPENDIX I
DIAGRAM 1
VERTICAL EXPANSIONS



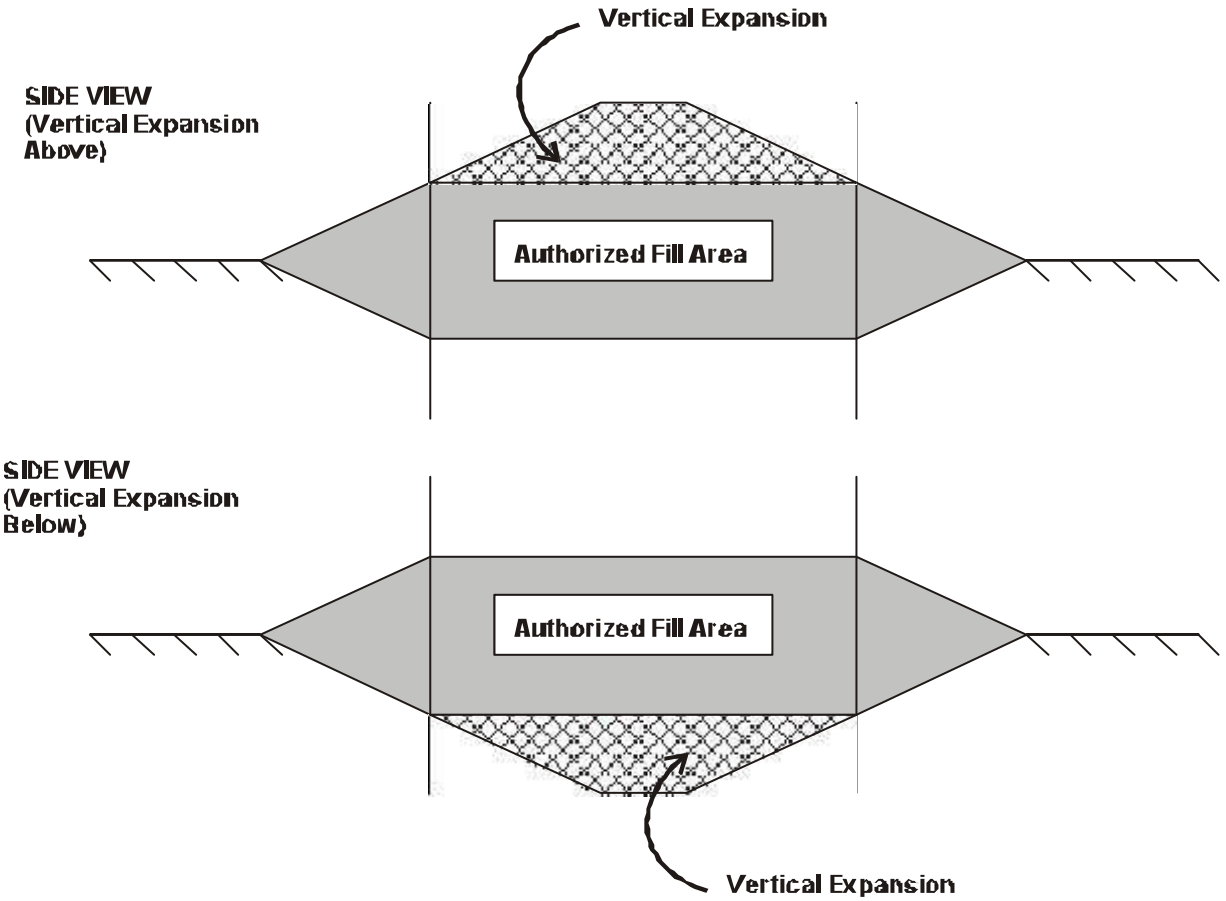
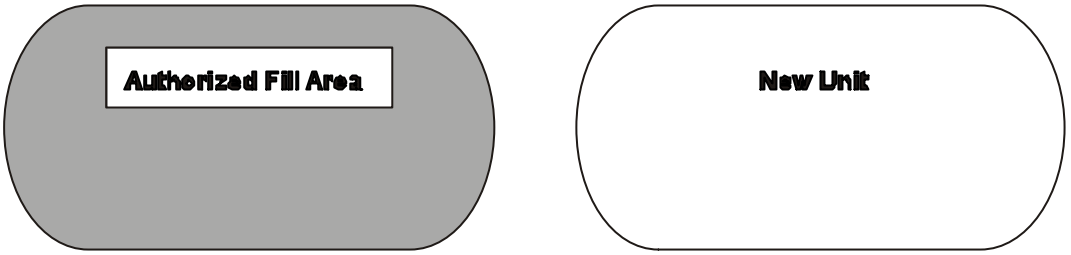


DIAGRAM 2
NONCONTIGUOUS UNITS

TOP VIEW



NO Siting Criteria Apply

ALL Siting Criteria Apply
(H)(1), (H)(2), (H)(3) & (H)(4)

SIDE VIEW

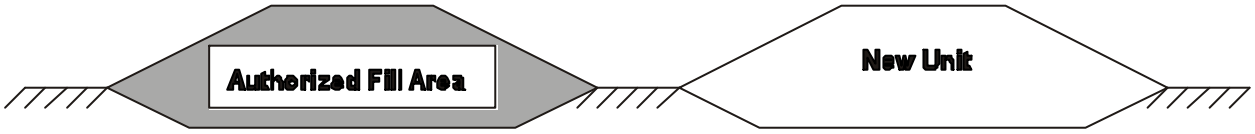
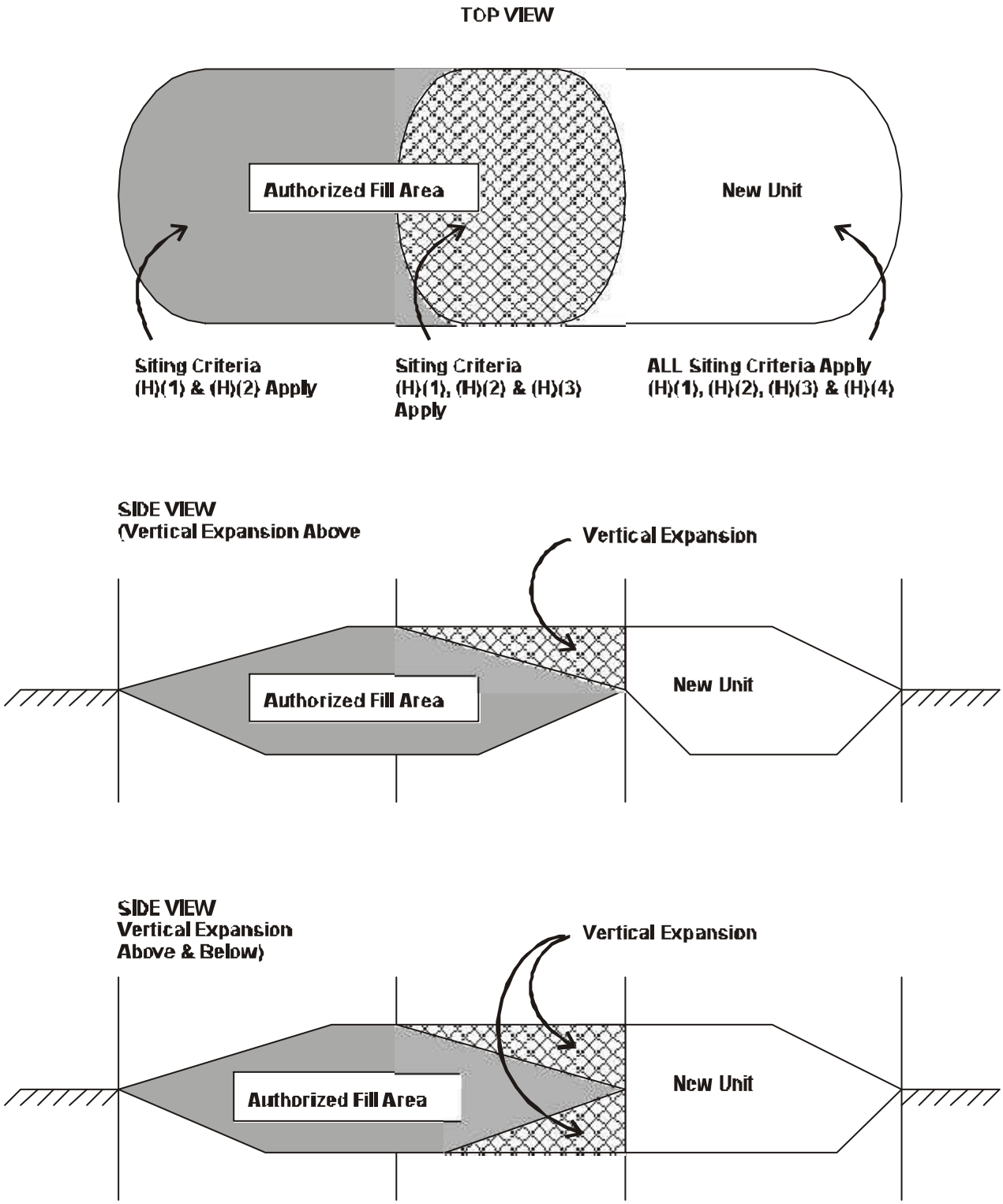


DIAGRAM 3
CONTIGUOUS NEW UNIT WITH VERTICAL EXPANSION



Appendix II

TYPE OF PERMIT		SITING CRITERIA 3745-27-07(H)													Location Restrictions required by Subtitle D see 3745-27-20 (airport, flood plain, fault area, seismic zone, unstable areas)
			GW Aquifer Protection					GW Setbacks			General Setbacks				
		nat'l parks (1)	sand gravel (2)(a)	quarry (2)(b)	sole source (2)(c)	100 gpm (2)(d)	15' sep. (2)(e)	5 yr. TOT (3)(a)	mine (3)(b)	1000' well (3)(c)	1000' wildlife (4)(a)	prop. line (4)(b)	1000' house (4)(c)	200' waters (4)(d)	
(G)(1)	call-in permit (includes all expansion areas proposed in application)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes (unfilled areas)
(G)(2)	operational changes	no	no	no	no	no	no	no	no	no	no	no	no	no	no**
(G)(3)	AMDWR	no	no	no	no	no	no	no	no	no	no	no	no	no	no**
(G)(4)	other modifications w/o capacity or change to waste boundaries	no	no	no	no	no	no	no	no	no	no	no	no	no	no**
(G)(5)(a)	vertical expansion	yes	yes	yes	yes	yes	yes	yes	yes	yes	no	no	no	no	no**
(G)(5)(b)	AFA not above/below vertical expansion but contiguous to VE	yes	yes	yes	yes	yes	yes	no	no	no	no	no	no	no	no**
(G)(6)	proposed new unit (lateral expansion and new landfill)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
(G)(7)(a)	noncontiguous AFA	no	no	no	no	no	no	no	no	no	no	no	no	no	no**
(G)(7)(b)	contiguous AFA	yes	yes	yes	yes	yes	yes	no	no	no	no	no	no	no	no**
(G)(7)(c)	combination of proposed new unit and vertical expansion of a contiguous AFA	Evaluate the vertical expansion to determine if it meets the criteria in paragraph (G)(5), then, if the vertical expansion meets the criteria, evaluate the proposed new unit.													yes (new unit)

"AFA" means authorized fill area
"AMDWR" means authorized maximum daily waste receipt
"VE" means vertical expansion
** Failure to comply with 3745-27-20 is a compliance issue. Substantial compliance is a permit approval criterion. See 3745-27-07(A)(3).

3745-27-07

Effective:	1/1/2021
Five Year Review (FYR) Dates:	7/6/2020 and 01/01/2026

CERTIFIED ELECTRONICALLY

Certification

11/02/2020

Date

Promulgated Under:	119.03
Statutory Authority:	3734.02, 3734.12
Rule Amplifies:	3734.02, 3734.12
Prior Effective Dates:	03/01/1990, 06/01/1994, 08/15/2003, 07/01/2004

3745-27-08 Sanitary landfill facility construction.

(A) Applicability. The construction requirements for a sanitary landfill facility specified in this rule are applicable to a sanitary landfill facility or permit to install application as specified in rules 3745-27-06, 3745-27-07, 3745-27-11, 3745-27-19, and 3745-27-20 of the Administrative Code.

(B) Engineered components for a sanitary landfill facility. The owner or operator shall incorporate the following engineered components in the design and construction of a sanitary landfill facility:

(1) At a minimum, a sanitary landfill facility shall include the following:

(a) A survey mark.

(b) A prepared in-situ foundation.

(c) A composite liner system that includes the following:

(i) A recompacted soil liner or a recompacted soil liner below a geosynthetic clay liner.

(ii) A flexible membrane liner.

(d) A leachate collection and management system that includes the following:

(i) A leachate collection layer.

(ii) Leachate collection pipes.

(iii) A filter layer.

(iv) A sump.

(v) Leachate conveyance apparatus.

(vi) Alternative components to those identified in paragraphs (B)(1)(d)(i) to (B)(1)(d)(v) of this rule if the owner or operator demonstrates to the satisfaction of Ohio EPA that the leachate collection and management system meets the requirements of paragraph (C)(3) of this rule.

(e) Surface water control structures including sedimentation ponds.

(f) A composite cap system that includes the following:

(i) A soil barrier layer or a geosynthetic clay liner above a subbase.

(ii) A flexible membrane liner.

(iii) A drainage layer.

(iv) A cap protection layer.

(v) Alternative components to those identified in paragraphs (B)(1)(f)(i) to (B)(1)(f)(iv) of this rule if the owner or operator demonstrates to the satisfaction of Ohio EPA that the cap system meets the requirements of paragraph (C)(4) of this rule.

(g) An explosive gas control system.

(h) Access roads.

(2) Supplemental engineered components that may be necessary to address site specific conditions including but not limited to the following:

(a) Permanent ground water control structures to control the impact of ground waters on other engineered components.

(b) Structural fill for berms and subbase.

(c) Added geologic material to meet the isolation distance requirement of rule 3745-27-07 of the Administrative Code.

(d) Liner cushion layer.

(e) Leachate storage structures, if there is no permitted discharge to a public sewer system or a permitted waste water treatment system.

(f) Separatory liner/leachate collection systems that may include the following components:

(i) A gas collection layer.

(ii) A recompacted soil liner.

(iii) A flexible membrane liner.

(iv) A leachate collection layer.

(v) Leachate collection pipes.

(vi) A filter layer.

(vii) A geosynthetic clay liner.

(g) Monocell or monofill separatory structures.

(h) A gas collection system.

(3) Optional engineered components that an owner or operator may propose for use in a sanitary landfill facility including but not limited to transitional cover.

(C) General design criteria. The objective of the design for any engineered component or system of components shall be to meet or exceed the specifications for design, construction and quality assurance testing pursuant to paragraph (D) of this rule along with the following general design criteria:

(1) The composite liner system shall be designed to do the following:

(a) Serve as a barrier to prevent the discharge of any leachate to ground or surface waters.

(b) For new facilities or lateral expansions of existing facilities, the composite liner system shall have at least a 2.0 per cent slope in all areas, except along flow lines augmented by leachate collection pipes, after accounting for one hundred per cent of the primary consolidation settlement and the secondary consolidation settlement of the compressible materials beneath the facility. Compressible material includes, as applicable, in-situ soil, added geologic material, structural fill material, and recompacted soil liner. For the purposes of this paragraph, secondary settlement shall be calculated using a 100-year time frame or another time frame acceptable to the director.

(c) For existing facilities where an owner or operator proposes to vertically expand over a composite liner system that was constructed after December 31, 2003, the slope of the existing composite liner system located beneath the vertical expansion shall meet the design standard in paragraph (C)(1)(b) of this rule.

[Comment: When initially designing and constructing a composite liner system, a conservative approach may be necessary to account for further settlement of the underlying materials caused by any potential vertical expansion above the initial design.]

[Comment: An owner or operator may revise the applicable authorizing document or modify the facility, with Ohio EPA approval, to meet the design standard in paragraph (C)(1)(b) of this rule.]

(d) For existing facilities where an owner or operator proposes to vertically expand over a composite liner system that was constructed before December 31, 2003, the owner or operator shall demonstrate to the director that the existing composite liner system located beneath the vertical expansion maintains at a minimum positive drainage in the leachate collection system and has no more than one foot of head of leachate after accounting for the additional waste and one hundred per cent of the primary consolidation settlement and the secondary consolidation settlement of the compressible materials beneath the facility. Compressible material includes, as applicable, in-situ soil, added geologic material, structural fill material, and recompacted soil liner. For the purposes of this paragraph, secondary settlement shall be calculated using a 100-year time frame or another time frame acceptable to the director.

(e) Have a maximum slope based on the following:

(i) Compaction equipment limitations.

(ii) Slope stability.

(2) The separatory liner/leachate collection system shall be designed to do the following:

(a) Serve as a barrier to direct leachate from new waste placement into the leachate collection system associated with the vertical expansion and to manage any explosive gas generated from the waste placement below the barrier.

(b) Have at least a 10.0 per cent constructed grade in all areas except along flow lines augmented by leachate collection pipes, or have some other minimum slope based on a design acceptable to the director.

(c) Have a maximum slope based on the following:

(i) Compaction equipment limitations.

(ii) Slope stability.

(d) The leachate collection and management system portion of the separatory liner shall be designed to limit the level of leachate to a maximum of one foot on the separatory liner throughout the operation and post closure of the facility.

(e) Include a combination of engineered components as listed in paragraph (B)(2)(f) of this rule that will function throughout the operational life and post closure period of the landfill. Alternative specifications to those included in paragraph (D) of this rule may be proposed in any new permit or permit modification.

(f) Minimize the amount of waste filled beneath the separatory liner system needed to obtain the necessary minimum slope.

(3) The leachate collection and management system shall be designed to do the following:

(a) Incorporate adequate measures that will automatically remove leachate from the landfill to a leachate storage structure, a permitted discharge to a public sewer, or a permitted waste water treatment system, and to facilitate the treatment or transfer of leachate from any storage structure for the purpose of disposal.

(b) Ensure any components located outside of the limits of solid waste placement are no less protective of the environment than the sanitary landfill facility.

(c) Ensure either the selection and specifications for the materials that will make up the leachate collection layer are protective of the flexible membrane liner, or include a liner cushion layer.

(d) Ensure the composite liner system is protected from the intrusion of objects during construction and operation.

(e) Ensure any geosynthetic materials have pre-construction interface testing performed in accordance with paragraph (G) of this rule.

(f) Ensure components of the leachate collection system are designed not to crush or deform under expected maximum loads and settlement to an extent where the crushing or deformation negatively impacts the performance of the leachate collection system.

(g) Ensure the leachate collection system is designed to minimize clogging.

(h) Ensure the selected materials are physically and chemically resistant to attack by the solid waste, leachate, or other materials with which they may come into contact.

(i) Limit the level of leachate in areas other than sumps to a maximum of one foot throughout the operation and post closure of the facility. For the purposes of this rule, a sump is an excavated depression of limited size that serves as a collection and transfer point for leachate.

(j) Have at least a 0.5 per cent grade for the leachate collection pipes after accounting for one hundred per cent of the primary consolidation settlement and the secondary consolidation settlement of the compressible materials beneath the facility which includes, as applicable, in-situ soil, added geologic material, structural fill material, and recompacted soil liner. For the purposes of this paragraph, secondary settlement shall be calculated using a 100-year time frame or another time frame acceptable to the director.

(4) The composite cap system shall be designed to do the following:

(a) Minimize infiltration of surface water.

(b) Serve as a barrier to prevent leachate outbreaks.

(c) Have at least a 5.0 per cent grade in all areas except where surface water control structures are located.

(d) Have a maximum slope based on the following:

(i) Compaction and maintenance equipment limitations.

(ii) Slope stability.

(e) Provide protection for all composite cap system components from the effects of the formation of landfill gas.

(5) Final surfaces of the landfill consisting of soil shall meet the following:

(a) Have a maximum projected erosion rate of five tons per acre per year.

(b) Be constructed with best management practices for erosion control.

(c) Have sufficient fertility in the uppermost portion to support vegetation.

(d) Be constructed in a manner such that healthy grasses or other vegetation can form a complete and dense vegetative cover not later than one year after placement.

(6) If applicable, the design of the explosive gas control system may use a passive venting system or an active extraction system to satisfy air pollution control requirements and shall be designed to maintain explosive gas concentrations outside the limits of waste placement below the explosive gas threshold limits identified in rule 3745-27-12 of the Administrative Code.

(7) The design of all geosynthetic materials specified in the engineered components including but not limited to flexible membrane liners, geosynthetic clay liners, and geocomposite drainage layers, shall not rely on any of the tensile qualities of these geosynthetic components. This paragraph does not apply to geosynthetics used to mechanically stabilize embankments.

(8) The design of the excavation, engineered components, and the waste mass shall consider all configurations throughout the applicable developmental and post closure care periods and meet the following:

(a) The factor of safety for hydrostatic uplift shall not be less than 1.40 at any location during the construction and operation of the facility.

(b) The factor of safety for bearing capacity of any vertical sump risers on the composite liner system shall not be less than 3.0.

(c) The factor of safety for static slope stability shall not be less than 1.50 using two dimensional limit equilibrium methods or another factor of safety using a method acceptable to the director when assessed for any of the following failure modes and conditions:

(i) Deep-seated translational and deep-seated rotational failure mechanisms of internal slopes, interim slopes, and final slopes for drained conditions. For slopes containing geosynthetic interfaces placed at grades greater than 5.0 per cent, large displacement shear strength conditions shall be used for any soil to geosynthetic or geosynthetic to geosynthetic interfaces. For geosynthetic to geosynthetic interfaces, use the large displacement shear strength of the geosynthetic with the lowest peak shear strength.

[Comment: Ohio EPA considers any failure that occurs through a material or along an interface that is loaded with more than one thousand four hundred forty pounds per square foot to be a deep seated failure mode.]

(ii) Shallow translational and shallow rotational failure mechanisms of internal slopes and final slopes for drained conditions.

[Comment: Peak shear strengths can be used for most shallow failure modes.]

(d) The factor of safety for static slope stability shall not be less than 1.30 using two dimensional limit equilibrium methods or another factor of safety using a method acceptable to the director when assessed for deep seated translational and deep seated rotational failure mechanisms of internal slopes, interim slopes, and final slopes for undrained conditions resulting from loading or unloading of the slopes. The analysis shall assume that the weight of the material is loaded or unloaded all at one time without time for pore pressure dissipation. Alternatively, if the facility is designed using staged loading calculations, the analysis shall assume that the weight of the material is loaded or unloaded all at one time at the end of stage construction.

(e) The factor of safety for seismic slope stability shall meet the following:

(i) Deep-seated translational and deep-seated rotational failure mechanisms of final slopes for drained conditions and as applicable conditions representing the presence of excess pore water pressure at the onset of loading or unloading shall comply with one of the following:

(a) Have a factor of safety of not less than 1.00 using two or three dimensional limit equilibrium methods. For slopes containing geosynthetic interfaces placed at grades greater than 5.0 per cent, large displacement shear strength conditions shall be used for any soil to geosynthetic or geosynthetic to geosynthetic interfaces. For geosynthetic to geosynthetic interfaces, use the large displacement shear strength of the geosynthetic with the lowest peak shear strength.

(b) The calculated deformations are limited to fifteen centimeters. For slopes containing geosynthetic interfaces, large displacement shear strength conditions shall be used for any soil to geosynthetic or geosynthetic to geosynthetic interfaces. For geosynthetic to geosynthetic interfaces, use the large displacement shear strength of the geosynthetic with the lowest peak shear strength.

(ii) Shallow translational and shallow rotational failure mechanisms of final slopes for drained conditions shall comply with one of the following:

(a) The factor of safety for shall not be less than 1.00 using two or three dimensional limit equilibrium methods.

(b) The calculated deformations are limited to thirty centimeters. For slopes containing geosynthetic interfaces, large displacement shear strength conditions shall be used for any soil to geosynthetic or geosynthetic to geosynthetic interfaces of the geosynthetic with the lowest peak shear strength.

(f) The factor of safety against liquefaction shall not be less than 1.00 for internal slopes, interim slopes, and final slopes.

(g) The factor of safety for static slope stability shall not be less than 1.10 using two dimensional limit equilibrium methods or other methods acceptable to the director when assessed for any of the following failure modes and conditions:

(i) If required by the director, shallow translational and shallow rotational failure mechanisms of internal slopes in which the protective soils over the leachate collection layer have reached field capacity. Calculations shall use the maximum head predicted for the fifty year, one hour design storm.

(ii) Shallow translational and shallow rotational failure mechanisms of final slopes in which the cover soils over the drainage layer have reached field capacity. Calculations shall use the maximum head predicted for the one hundred year, one hour design storm.

[Comment: The number of digits after the decimal point indicates that rounding can only occur to establish the last digit. For example, 1.485 can be rounded to 1.49, but not 1.5 or 1.50.]

(9) Assumptions used in the performance analyses in paragraph (C)(8) of this rule shall be used to establish the minimum specifications and materials for construction of the sanitary landfill facility.

(D) Design, construction and testing specifications. The owner or operator shall meet or exceed the following specifications in the design, construction, and quality assurance testing of all engineered components of a sanitary landfill facility.

[Comment: The order of the engineered components in this paragraph reflects a logical bottom to top or a typical construction sequencing approach. Reporting requirements will be dependent on which engineered components are being certified. In general, a test pad certification report submitted to Ohio EPA for written concurrence may be used repeatedly in future construction certifications provided the soil properties of the borrow soil remain the same. Pre-construction testing results for borrow soils or shear strength testing results for geosynthetic components may be submitted as often as necessary during the construction process to allow for their continued use. A single construction certification report for each construction project shall be submitted in accordance with rule 3745-27-19 of the Administrative Code to Ohio EPA for written concurrence with all quality assurance testing and for approval of all alterations that are included in the certification report.]

(1) Survey marks. At least one permanent survey mark shall be established prior to any construction and within easy access to the limits of solid waste placement and in accordance with the following:

(a) Be referenced horizontally to the North American datum, or state plan coordinate system and vertically to the North American vertical sea level datum as identified by the national geodetic survey.

(b) To be at least as stable as a poured concrete monument ten inches in diameter installed to a depth of forty-two inches below the ground surface, including a corrosion resistant metallic disk that indicates horizontal and vertical coordinates of the survey mark, and contains a magnet or ferromagnetic rod to allow identification through magnetic detection methods.

(c) Survey control standards for the survey marks shall have a minimum horizontal distance accuracy of one foot horizontal to two thousand five hundred feet horizontal and a minimum vertical accuracy of one inch to five thousand feet horizontal.

(2) Surface water control structures. Surface water run-on and run-off control structures shall comply with the following:

(a) Accommodate the peak flow from the twenty-five year, twenty-four hour storm event.

(b) Minimize silting and scouring.

(c) Use non-mechanical means for all permanent structures.

(3) Sedimentation ponds. Sedimentation ponds shall comply with the following:

(a) Have a minimum storage volume, excluding sediment volume, based on the larger of the following:

(i) The calculated run-off volume from a ten year, twenty-four hour storm event.

(ii) The scheduled frequency of pond clean-out, which shall be no more often than once per year, multiplied by 0.125 acre-feet per year for each acre of disturbed area within the upstream drainage area.

(b) Have a principal spillway that safely discharges the flow from a ten year, twenty-four hour storm event using non-mechanical means.

(c) Have an inlet elevation of the emergency spillway to provide flood storage, with no flow entering the emergency spillway while allowing flow through the principal spillway during a twenty-five year, twenty-four hour storm event.

(d) Have the combination of principal and emergency spillways to safely discharge the flow from a one hundred year, twenty-four hour storm event using non-mechanical means.

(e) Have an embankment design that provides for no less than one foot net freeboard when flow is at the design depth, after allowance for embankment settlement.

(4) Ground water control structures.

(a) Permanent ground water control structures shall adequately control ground water infiltration through the use of non-mechanical means such as impermeable barriers or permeable drainage structures. No permanent ground water control structures shall be used to dewater an aquifer system, except if the recharge and discharge zone of the aquifer system are located entirely within the boundary of the sanitary landfill facility.

(b) For purposes of controlling ground water infiltration until sufficient load has been placed in all locations across the facility such that a 1.40 factor of safety for hydrostatic uplift is achieved, a pumping system of a temporary ground water control structure shall include a high-level alarm set at an elevation no higher than the base of the recompacted soil liner being protected by the temporary ground water control structure.

(5) In-situ foundation. The unconsolidated or consolidated stratigraphic units that make up the in-situ foundation shall comply with the following:

(a) Be free of debris, foreign material, and deleterious material.

(b) Not be comprised of solid waste.

(c) Not have any abrupt changes in grade that may result in damage to the composite liner system.

(d) Be proof rolled, if applicable.

(e) Be determined to have adequate strength to satisfy bearing capacity and slope stability strength requirements.

(f) Be resistant to internal erosion.

(g) Have quality control testing of any stratigraphic units that have not been anticipated and that are more susceptible to slope failure or seepage piping failure than the stratigraphic units that were tested and reported in the permit to install. This testing shall be at a frequency of three tests per unit and in accordance with the following:

(i) For the effective shear strength of each unconsolidated stratigraphic unit that may be susceptible to slope failure and the recompacted soil liner, determined in accordance with ASTM D3080, ASTM D4767, or ASTM D6467.

(ii) For the undrained shear strength of all applicable unconsolidated stratigraphic units using fully saturated samples, determined in accordance with ASTM D2850 or ASTM D4767.

(iii) For the resistance to internal erosion of each unconsolidated stratigraphic unit that may be susceptible to seepage piping failure, determined in accordance with ASTM D4647. Units susceptible to seepage piping failure include those located within fifteen feet of the proposed depths of excavation and those located where the piezometric surface of an aquifer or a zone of significant saturation is above the depth of excavation.

(6) Structural fill. Rock fills or soil fills used in structural berms or subbase shall comply with the following:

(a) Be durable rock for rock fills only.

(b) Be free of debris, foreign material, and deleterious material.

(c) Not be comprised of solid waste.

(d) Not have any abrupt changes in grade that may result in damage to the composite liner system.

(e) For soil fills, have pre-construction testing of the borrow soils performed on representative samples to determine the maximum dry density and optimum moisture content in accordance with ASTM D698 or ASTM D1557 at a frequency of no less than once for every ten thousand cubic yards.

(f) Be constructed in lifts to achieve uniform compaction of soil fills. Each lift shall comply with the following:

(i) Be constructed in loose lifts of twelve inches or less.

(ii) Be compacted to at least ninety-five per cent of the maximum dry density determined in accordance with ASTM D698 or at least ninety per cent of the maximum dry density determined in accordance with ASTM D1557.

(g) Be determined to have adequate strength to satisfy bearing capacity and slope stability strength requirements.

(h) Have quality control testing of the soil fills on the constructed lifts performed to determine the density and moisture content in accordance with ASTM D6938, ASTM D1556, ASTM D2167, or other methods acceptable to Ohio EPA at a frequency of no less than five tests per acre per lift. The locations of the individual tests shall be adequately spaced to represent the constructed area.

(7) Added geologic material. Added geologic material shall comply with the following:

(a) Provide at least fifteen feet of isolation distance between the uppermost aquifer system and the bottom of the recompacted soil liner.

(b) Be free of debris, foreign material, deleterious material, and not contain large objects in such quantities as may interfere with the application and intended purpose.

(c) Not be comprised of solid waste.

(d) Not have any abrupt changes in grade that may result in damage to the composite liner system.

(e) Have pre-construction testing of the borrow soils performed on representative samples to determine the following:

(i) The maximum dry density and optimum moisture content in accordance with ASTM D698, or ASTM D1557 at a frequency of no less than once for every ten thousand cubic yards.

(ii) The recompacted laboratory permeability is a maximum of 1.0×10^{-5} cm/sec in accordance with ASTM D5084 tested at a frequency of no less than once for every ten thousand cubic yards. This paragraph does not apply if the soil is classified as a low plasticity clay (CL), a silty clay (ML-CL), a high plasticity clay (CH), a clayey sand (SC) or a clayey gravel (GC) in the "Unified Soil Classification System" as described in ASTM D2487.

(iii) The grain size distribution in accordance with ASTM D6913 and D7928 at a frequency of no less than once for every three thousand cubic yards.

(iv) Atterberg limits in accordance with ASTM D4318 at a frequency of no less than once for every three thousand cubic yards.

(v) If the piezometric surface of an underlying aquifer or a zone of significant saturation is above the top of the added geologic material, the dispersive clay soils classification by pinhole test in accordance with ASTM D4647 at a frequency of no less than once for every fifty thousand cubic yards.

(f) Be constructed in lifts to achieve uniform compaction. Each lift shall comply with the following:

(i) Be constructed in loose lifts of twelve inches or less.

(ii) Be constructed of a soil with a maximum clod size that does not exceed the lift thickness.

(iii) Be compacted to at least ninety-five per cent of the maximum dry density determined in accordance with ASTM D698 or at least ninety per cent of the maximum dry density determined in accordance with ASTM D1557.

(iv) Be placed with a soil moisture content that is not be less than two per cent below or more than four per cent above the optimum moisture content determined in accordance with ASTM D698 or ASTM D1557.

(v) If the piezometric surface of an underlying aquifer or a zone of significant saturation is above the top of the added geologic material, the added geologic material be classified as slightly dispersive (ND3) or nondispersive (ND2, ND1) determined in accordance with ASTM D4647.

(g) Be determined to have adequate strength to satisfy bearing capacity and slope stability strength requirements.

(h) Have quality control testing of the constructed lifts performed to determine the density and moisture content in accordance with ASTM D6938, ASTM D1556M, ASTM D2167, or other methods acceptable to Ohio EPA at a frequency of no less than five tests per acre per lift. The locations of the individual tests shall be adequately spaced to represent the constructed area. Any penetrations shall be repaired using bentonite.

(8) Recompacted soil liner. The recompacted soil liner shall comply with the following:

(a) Have a minimum thickness as follows:

(i) Three feet.

(ii) Two feet when used in conjunction with a geosynthetic clay liner that meets the specifications in paragraph (D)(9) of this rule.

(iii) Two feet for the recompacted soil liner component of a separatory liner/leachate collection system.

(b) Be free of debris, foreign material, and deleterious material.

(c) Not be comprised of solid waste.

(d) Be placed beneath all areas of waste placement.

(e) Not have any abrupt changes in grade that may result in damage to the geosynthetics.

(f) Have pre-construction testing of the borrow soils performed on representative samples and the results submitted to the appropriate Ohio EPA district office not later than seven days prior to the intended use of the material in the construction of the recompacted soil liner. The pre-construction testing shall determine the following:

(i) The maximum dry density and optimum moisture content in accordance with ASTM D698, or ASTM D1557 at a frequency of no less than once for every one thousand five hundred cubic yards.

(ii) The grain size distribution in accordance with ASTM D6913 and ASTM D7928 at a frequency of no less than once for every one thousand five hundred cubic yards.

(iii) The atterberg limits in accordance with ASTM D4318 at a frequency of no less than once for every one thousand five hundred cubic yards.

(iv) The recompacted laboratory permeability in accordance with ASTM D5084 at a frequency of no less than once for every ten thousand cubic yards.

(v) If the piezometric surface of an underlying aquifer or a zone of significant saturation is above the top of the recompacted soil liner, the dispersive clay soils classification by pinhole test in accordance with ASTM D4647 at a frequency of no less than once for every fifty thousand cubic yards.

(g) Be constructed in lifts to achieve uniform compaction. Each lift shall include the following:

(i) Be constructed with qualified soils and the corresponding construction details established by written concurrence from Ohio EPA with the test pad certification report pursuant to paragraph (E) of this rule, or an alternative to qualifying soils with a test pad if it is demonstrated to the satisfaction of Ohio EPA that the materials and techniques will result in each lift having a maximum permeability of 1.0×10^{-7} cm/sec, and the following specifications:

(a) With loose lifts of eight inches or less.

(b) With a maximum clod size of three inches or half the lift thickness, whichever is less.

(c) With one hundred per cent of the particles having a maximum dimension not greater than two inches.

(d) With not more than ten per cent of the particles by weight having a dimension greater than 0.75 inches.

(ii) Be compacted to at least ninety-five per cent of the maximum dry density determined in accordance with ASTM D698, at least ninety per cent of the maximum dry density determined in accordance with ASTM D1557, or an alternative compaction specification acceptable to Ohio EPA.

(iii) Be placed with a minimum soil moisture content that is not be less than the optimum moisture content determined in accordance with ASTM D698, ASTM D1557, or an alternative soil moisture content specification acceptable to Ohio EPA.

(iv) Have a maximum permeability of $1.0 \text{ X } 10^{-7}$ cm/sec.

(v) If the piezometric surface of an underlying aquifer or a zone of significant saturation is above the top of the recompacted soil liner, then the recompacted soil liner material be classified as slightly dispersive (ND3) or nondispersive (ND2, ND1) determined in accordance with ASTM D4647.

(h) Be adequately protected from damage due to desiccation, freeze/thaw cycles, wet/dry cycles, and the intrusion of objects during construction and operation.

(i) Be determined to have adequate strength to satisfy bearing capacity and slope stability strength requirements.

(j) Have quality control testing of the constructed lifts performed to determine the density and moisture content in accordance with ASTM D6938, ASTM D1556M, ASTM D2167, or other methods acceptable to Ohio EPA at a frequency of no less than five times per acre per lift. The locations of the individual tests shall be adequately spaced to represent the constructed area. Any penetrations shall be repaired using bentonite.

(9) Geosynthetic clay liner. A geosynthetic clay liner used as part of the recompacted soil liner or as part of the composite cap system shall comply with the following:

(a) Be negligibly permeable to fluid migration.

(b) Have a dry bentonite mass per unit area of at least 0.75 pounds per square foot at zero per cent moisture content.

(c) Have pre-construction testing of the geosynthetic clay liner material performed on representative samples and the results submitted to the appropriate Ohio EPA district office not later than seven days prior to the intended use of the material. The pre-construction testing shall determine the following:

(i) If the internal drained shear strength is at higher risk of slope failure than the interfaces tested in accordance with paragraph (G) of this rule, the internal drained shear strength in accordance with ASTM D6243 at least twice for the initial use and at least once for each subsequent construction event. Tests involving geosynthetic clay liner material shall be conducted with

hydrated samples.

[Comment: If a shear stress point plots below the shear strength failure envelope defined by the necessary factor of safety, it will be considered a failed test.]

(ii) The dry bentonite mass (at zero per cent moisture content) per square foot of geosynthetic clay liners in accordance with ASTM D5993 at a frequency of no less than once per fifty thousand square feet.

(iii) The interface shear strength in accordance with paragraph (G) of this rule.

(d) Be installed in the following manner:

(i) To allow no more than negligible amounts of leakage, maintain a minimum overlap of six inches, or, for end-of-panel seams, a minimum overlap of twelve inches. Overlap shall be increased in accordance with manufacturer's specifications or to account for shrinkage due to weather conditions.

(ii) In accordance with the manufacturer's specifications in regards to handling and the use of granular or powdered bentonite to enhance bonding at the seams.

(iii) Above the recompacted soil liner when used in liner systems or above an engineered subbase pursuant to paragraph (D)(22) of this rule when used in composite cap systems. Geosynthetic clay liners without internal reinforcement shall not be used in areas beneath leachate collection piping, in sump areas, or on any slope with a grade that is steeper than ten per cent.

(iv) On a surface that shall not have any sharp edged protrusions or any particles protruding more than one quarter of one inch.

(e) Be adequately protected from damage due to desiccation and erosion.

(10) Flexible membrane liner. The flexible membrane liner shall comply with the following:

(a) Be a sixty mil high density polyethylene (HDPE) geomembrane for composite liner systems or a forty mil geomembrane for composite cap systems or another material or thicknesses acceptable to Ohio EPA.

(b) Be physically and chemically resistant to attack by the solid waste, leachate, or other materials that may come in contact with the flexible membrane liner using SW-846 method 9090 or other documented data.

(c) Have pre-construction interface testing performed according to paragraph (G) of this rule.

(d) Be placed above and in direct and uniform contact with the recompacted soil liner or the recompacted soil barrier layer or the geosynthetic clay liner.

(e) For installations exceeding ten thousand square feet, at least one welding technician having seamed a minimum of one million square feet of flexible membrane liner shall be present during installation.

(f) Be seamed to allow for no more than negligible amounts of leakage. The seaming material shall be physically and chemically resistant to chemical attack by the solid waste, leachate, or other materials that may come in contact with the seams.

(g) Be cleaned of deleterious materials in the seaming area immediately prior to seaming.

(h) Have quality control testing in accordance with the following, unless the manufacturer's specifications for testing are more stringent, in which case the manufacturer's specifications shall be used:

(i) For the purpose of testing every seaming apparatus in use each day, perform peel tests according to an appropriate method on scrap pieces of flexible membrane liner when an apparatus is started, operators change, an apparatus is restarted, or at the beginning of each seaming period.

(ii) Perform nondestructive testing on one hundred per cent of the flexible membrane liner seams.

(iii) Perform destructive testing for peel according to the appropriate ASTM method on randomly selected samples at a frequency of no less than once per one thousand feet of seam completed by a particular seaming apparatus. An alternate means may be used if it is demonstrated to the satisfaction of Ohio EPA that the alternate means meets the requirements of this paragraph.

(iv) Perform electrical leak location testing in accordance with ASTM D7007 or ASTM D8265 following placement of drainage layer or the protective layer over a geocomposite drainage layer. If testing in accordance with ASTM D7007 or ASTM D8265 is unable to be performed, electrical leak location testing shall be performed in accordance with ASTM D7002, ASTM D7703, ASTM D7240, or ASTM D7953 on the exposed flexible membrane liner. This paragraph does not apply to repairs that are made after the initial electrical leak location testing.

[Comment: Examples of when ASTM D7007 or ASTM D8265 is deemed unable to be performed include conditions with isolation limitations, construction sequencing issues, and due to unique properties of materials used for the drainage layer or protective layer over a geocomposite drainage layer.]

(11) Liner cushion layer. The liner cushion layer shall be placed above the flexible membrane liner, protect the flexible membrane liner from damage that may be caused by construction materials and activities, account for the weight of the overlying waste mass, and have pre-construction interface testing performed according to paragraph (G) of this rule. The liner cushion layer shall be adequately protected from solar degradation.

(12) Leachate collection layer. The leachate collection layer shall be placed above the composite liner system, which may be protected by the cushion layer, and shall comply with the following:

(a) Be comprised of granular materials that meet the following requirements:

(i) Have a minimum thickness of one foot.

(ii) Have no more than five per cent of the particles by weight passing through the 200-mesh sieve.

(iii) Have no more than five per cent carbonate content by weight.

(iv) Have a minimum permeability of 1.0×10^{-2} cm/sec.

(v) Have quality control testing in accordance with the following:

(a) Permeability in accordance with ASTM D2434 at a frequency of no less than once for every three thousand cubic yards of material.

(b) Grain size distribution in accordance with ASTM C136 at a frequency of no less than once for every three thousand cubic yards of material.

(c) Carbonate content in accordance with ASTM D3042 at a pH of 4.0 and at a frequency of no less than once for every ten thousand cubic yards of material.

(vi) An alternate material or thickness may be used provided that it is demonstrated to the satisfaction of Ohio EPA that the material meets the requirements of this paragraph and the appropriate quality control testing and frequency of testing are approved by Ohio EPA prior to use.

(vii) The granular leachate collection layer shall not be placed over wrinkles in the flexible membrane liner that are greater than four inches in height.

(b) For a geocomposite drainage layer used in lieu of a granular drainage layer, the following requirements:

(i) Have a minimum transmissivity to ensure that the leachate collection system meets the one foot of head of leachate requirement of this rule. The transmissivity shall be adjusted for elastic deformation, creep deformation, biological clogging, and chemical clogging by using the appropriate reduction factors.

(ii) To protect the composite liner system from the intrusion of objects during construction and operation, include a minimum of twelve inches of permeable material acceptable to Ohio EPA. The permeable material shall not be placed over wrinkles in the flexible membrane liner that are greater than four inches in height.

(iii) Have quality control testing for transmissivity in accordance with ASTM D4716 at the maximum projected load and a frequency of once per five hundred thousand square feet. The testing shall be performed in a manner representing field conditions.

(13) Leachate collection pipes. The leachate collection pipes shall comply with the following:

(a) Be embedded in the drainage layer.

(b) Be provided with access for clean-out devices that shall be protected from differential settling.

(c) Have lengths and configurations that shall not exceed the capabilities of clean-out devices.

(d) Have joints sealed to prevent separation.

(e) Sealing material and means of access for cleanout devices shall be resistant to physical and chemical attack by the solid waste, leachate, or other materials with which they may come into contact.

(14) Filter layer. The filter layer of the leachate collection and management system shall comply with the following:

(a) Be placed above the leachate collection layer and leachate collection pipes.

(b) Be designed to minimize clogging of the leachate collection layer, leachate collection pipes, and sumps.

(15) Sumps. The leachate collection and management system shall incorporate an adequate number of sumps that comply with the following:

(a) Be protected from adverse effects from leachate and differential settling.

(b) Be equipped with automatic high level alarms located no greater than one foot above the top elevation

of the sump.

(16) Leachate conveyance apparatus. Any leachate conveyance apparatus located outside of the limits of solid waste placement shall comply with the following:

(a) Be monitored as required by the director.

(b) Be protected from the effects of freezing temperatures, crushing, or excess deflection.

(17) Leachate storage structures. Leachate storage structures shall have adequate storage capacity to receive the anticipated amount of leachate removed during normal operations from the leachate sumps to maintain a maximum one foot of head and at a minimum have at least one week of storage capacity using design assumptions simulating final closure completed in accordance with rule 3745-27-11 of the Administrative Code. Any leachate storage structures located outside of the limits of solid waste placement shall be monitored as required by Ohio EPA and include the following:

(a) For an above ground leachate storage tank, spill containment no less than one hundred ten per cent of the tank volume.

(b) For an underground leachate storage tank, be double cased with a witness zone.

(c) For a leachate pond, primary and secondary liners with a leak detection system and defined action leakage rate.

(d) For a leachate pond, a layer capable of protecting the liner system from damage during pond cleanout.

(e) For a leachate pond, no less than three feet of freeboard above the basin capacity.

(18) Access roads. All access roads used for waste hauling that are constructed within the horizontal limits of waste placement shall comply with the following:

(a) Not have grades in excess of twelve per cent.

(b) Be designed to be stable and to prevent damage to the liner or composite cap systems caused by the effects of traffic loading and braking or any other action.

(19) Transitional cover. Not later than one hundred twenty days after a portion of the facility reaches final elevations, transitional cover, as specified in rule 3745-27-19 of the Administrative Code, shall be installed that complies with the following:

(a) Consists of a twenty-four inch thick layer of soil with a minimum twelve per cent particles by weight passing through the number 200 sieve. Testing for grain size shall be performed on representative samples of the soil at a frequency of no less than once for every three thousand cubic yards in accordance with ASTM D1140 or ASTM D6913, as appropriate.

(b) Consists of soil that does not contain large objects in such quantities as may interfere with the soil's application and intended purpose, be of sufficient thickness and fertility to support vegetation, and be seeded as soon as practicable. Healthy grasses or other vegetation shall form a complete and dense vegetative cover within one year of soil placement.

(c) An alternative to paragraphs (D)(19)(a) and (D)(19)(b) of this rule may be used if the owner or operator demonstrates to the satisfaction of Ohio EPA that the material will minimize infiltration of surface water and be installed in such a manner to minimize maintenance.

(20) Gas collection system. The gas collection system shall be installed prior to the composite cap system and comply with the following:

(a) Collect and transport gas and condensate without adversely impacting the composite cap system.

(b) Facilitate maintenance to portions of the component without requiring the entire system to be closed down.

[Comment: Condensate may be allowed to remain in the waste mass provided that there is a composite liner and leachate collection system.]

(21) Cap soil barrier layer. Design and construction of a recompacted soil barrier layer in the composite cap system shall comply with the following:

(a) Be at least eighteen inches thick.

(b) Be free of debris, foreign material, and deleterious material.

(c) Not be comprised of solid waste.

(d) Be placed above all areas of waste placement.

(e) Not have any abrupt changes in grade that may result in damage to cap geosynthetics.

(f) Have pre-construction testing of the borrow soils performed on representative samples and the results submitted to the appropriate Ohio EPA district office not later than seven days prior to the intended use of the material in the construction of the cap soil barrier layer. The pre-construction testing shall determine the following:

(i) The maximum dry density and optimum moisture content in accordance with ASTM D698, or ASTM D1557 at a frequency of no less than once for every one thousand five hundred cubic yards.

(ii) The grain size distribution in accordance with ASTM D6913 at a frequency of no less than once for every one thousand five hundred cubic yards.

(iii) The recompacted laboratory permeability in accordance with ASTM D5084 at a frequency of no less than once for every ten thousand cubic yards. If the maximum dry density and optimum moisture content was determined in accordance with ASTM D698, the soil shall be recompacted to at least ninety-five per cent. If the maximum dry density and optimum moisture content was determined in accordance with ASTM D1557, the soil shall be recompacted to at least ninety per cent. The recompacted soil moisture content shall not be less than the optimum moisture content from the prescribed proctor test.

(g) Have a minimum recompacted laboratory permeability of 1.0×10^{-6} cm/s.

(h) Be constructed in lifts to achieve uniform compaction. Each lift shall conform to the following:

(i) Be constructed of soil in accordance with the following:

(a) With loose lifts of eight inches or less.

(b) With a maximum clod size of three inches or half the lift thickness, whichever is less.

(c) With at least eighty per cent of the particles by weight passing through the number 4 standard mesh screen.

(d) Alternative soil specifications may be used provided that it is demonstrated to the satisfaction of Ohio EPA that the materials and techniques will result in each lift having a maximum permeability of 1.0×10^{-6} cm/sec.

(ii) Be compacted to a maximum dry density and minimum soil moisture content not less than that used in the recompacted laboratory permeability test in accordance with paragraph (D)(21)(g) of this rule.

(i) Be adequately protected from damage due to desiccation, freeze/thaw cycles, wet/dry cycles, and the intrusion of objects during construction of the composite cap system.

(j) Have quality control testing of the constructed lifts performed to determine the density and moisture content in accordance with ASTM D6938, ASTM D1556M, ASTM D2167, or other methods acceptable to Ohio EPA at a frequency of no less than five tests per acre per lift. The locations of the individual tests shall be adequately spaced to represent the constructed area. Any penetrations shall be repaired using bentonite.

(22) Subbase below a geosynthetic clay liner used in the composite cap system. Design and construction of the subbase shall comply with the following:

(a) The thickness of the subbase shall be sufficient to achieve an evenly graded surface and be a minimum of twelve inches thick.

(b) Be free of debris, foreign material, and deleterious material.

(c) Not be comprised of solid waste.

(d) Not have any abrupt changes in grade that may result in damage to the geosynthetics.

(e) Not have any sharp edged protrusions or any particles protruding more than one quarter of one inch.

(f) Have pre-construction testing of the borrow soils performed on representative samples to determine the maximum dry density and optimum moisture content in accordance with ASTM D698, or ASTM D1557 at a frequency of no less than once for every ten thousand cubic yards.

(g) Be constructed in lifts to achieve uniform compaction. Each lift shall include the following:

(i) Soil constructed as follows:

(a) In loose lifts of eight inches or less.

(b) With a maximum clod size that does not exceed the lift thickness.

(ii) Be compacted to at least ninety five per cent of the maximum dry density determined in accordance with ASTM D698 or at least ninety per cent of the maximum dry density determined in accordance with ASTM D1557.

(h) Have quality control testing of the constructed lifts performed to determine the density and moisture content in accordance with ASTM D2922 and ASTM D3017, ASTM D1556, ASTM D2167 or other methods acceptable to Ohio EPA at a frequency of no less than five tests per acre per lift. The

locations of the individual tests shall be adequately spaced to represent the constructed area. Any penetrations shall be repaired using bentonite.

(23) Cap flexible membrane liner. A flexible membrane liner meeting the requirements of paragraph (D)(10) of this rule with the exception of paragraph (D)(10)(h)(iv) of this rule shall be placed above the recompacted soil barrier layer or the geosynthetic clay liner in the composite cap system.

(24) Cap drainage layer. The drainage layer for the composite cap system shall comply with the following:

(a) Be comprised of granular materials that meet the following requirements:

(i) Have a minimum thickness of one foot.

(ii) Will not clog or freeze.

(iii) Will not damage the underlying flexible membrane liner.

(iv) Have no more than five per cent of the particles by weight passing through the 200-mesh sieve.

(v) Have no greater than ten per cent carbonate content by weight.

(vi) Have a minimum permeability of 1.0×10^{-3} cm/sec.

(vii) Have quality control testing in accordance with the following:

(a) Permeability in accordance with ASTM D2434 at a frequency of no less than once for every three thousand cubic yards of material.

(b) Grain size distribution in accordance with ASTM C136 at a frequency of no less than once for every three thousand cubic yards of material.

(c) Carbonate content in accordance with ASTM D3042 at a pH of 4.0 at a frequency of no less than once for every ten thousand cubic yards of material.

(viii) An alternative material or thickness may be used provided it is demonstrated to the satisfaction of Ohio EPA prior to use that the material meets the requirements of this paragraph.

(ix) Not be placed over wrinkles in the flexible membrane liner that are greater than four inches in height.

(b) A geocomposite drainage layer used in lieu of a granular drainage layer shall meet the following requirements:

(i) Have a minimum transmissivity to ensure that the composite cap system meets the slope stability requirements of this rule. The transmissivity shall be adjusted for elastic deformation, creep deformation, biological clogging, and chemical clogging by using the appropriate reduction factors.

(ii) Ensure the composite liner system is protected from the intrusion of objects during construction.

(iii) Have quality control testing for transmissivity in accordance with ASTM D4716 at the maximum projected load and a frequency of once per five hundred thousand square feet. The testing shall be performed in a manner representing field conditions.

(iv) Be comprised of geosynthetic materials that have pre-construction interface testing performed according to paragraph (G) of this rule.

(25) Cap protection layer. A cap protection layer consisting of soil shall comply with the following:

(a) Be placed above the cap drainage layer.

(b) Be a minimum of thirty-six inches thick for facilities located in the northern tier of counties in Ohio (Williams, Fulton, Lucas, Ottawa, Erie, Lorain, Cuyahoga, Lake, Geauga, and Ashtabula counties) and thirty inches thick for facilities located elsewhere in Ohio. The thickness of the drainage layer may be used to satisfy the thickness requirement of the cap protection layer.

(c) Have a maximum permeability in accordance with the final slope stability calculation.

(d) Have pre-construction testing of the borrow soils performed on representative samples to determine the recompacted laboratory permeability in accordance with ASTM D5084. Testing shall be at a frequency of no less than once for every ten thousand cubic yards. The borrow soil being tested shall be recompacted to no greater than ninety per cent of the maximum dry density determined in accordance with ASTM D698, with a moisture content within one per cent of optimum.

(e) For a cap protective layer placed on a geocomposite drainage layer, not be placed over wrinkles in the flexible membrane liner that are greater than four inches in height.

(26) Explosive gas control system. An explosive gas control system shall not compromise the integrity of the composite cap system, the leachate management system, or the composite liner system, and shall comply with the following:

(a) Accommodate waste settlement.

(b) Provide for the removal of condensate.

(c) Prevent lateral movement of explosive gas from the sanitary landfill facility.

(d) Prevent fires within the limits of solid waste placement.

(E) Test pad construction and certification. The construction of the recompacted soil liner shall be modeled by an approved test pad. The purpose of the test pad is to determine construction details necessary to achieve the permeability standard for recompacted soil liners and to establish a set of parameters for certification of the soils to be used in the construction of the recompacted soil liner. Test pad construction and certification shall comply with the following:

(1) Be designed such that the proposed tests are appropriate and the results of each test are valid.

(2) Have an area large enough to perform valid field permeability testing with a minimum width three times the width of compaction equipment and a minimum length two times the length of compaction equipment, including power equipment and any attachments.

(3) Have a thickness of no less than thirty inches.

(4) Have the following pre-construction testing performed on representative samples of the test pad construction soils at a minimum frequency of twice per lift:

(a) The maximum dry density and optimum moisture content in accordance with ASTM D698, or ASTM D1557.

(b) Grain size distribution in accordance with ASTM D6913 and ASTM D7928.

(c) Atterberg limits in accordance with ASTM D4318.

(5) Be constructed prior to the construction of the recompacted soil liner that the test pad will model.

(6) Include the following construction details:

(a) The maximum loose lift thickness.

(b) The minimum soil moisture content that is not less than the optimum moisture content determined in accordance with ASTM D698 or ASTM D1557.

(c) The minimum soil dry density that is not less than ninety-five per cent of the maximum "Standard Proctor Density" determined in accordance with ASTM D698 or at least ninety per cent of the maximum "Modified Proctor Density" determined in accordance with ASTM D1557.

(d) The specific type and weight of compaction equipment manufactured for the purpose of compacting cohesive soils.

(e) The minimum number of passes of the compaction equipment. For the purposes of this rule, one pass is defined as a single contact of the compactor over an area.

(7) Be reconstructed as follows:

(a) With new borrow soil as many times as necessary to meet the permeability requirement.

(b) Whenever there is a significant change in soil material properties.

(c) Whenever the owner or operator would like to amend the construction details.

(8) Have quality control testing of the constructed lifts performed to determine the density and moisture content in accordance with ASTM D6938, ASTM D1556, ASTM D2167, or other methods acceptable to Ohio EPA at a frequency of no less than three tests per lift. The locations of the individual tests shall be adequately spaced to represent the constructed area. Any penetrations shall be repaired using bentonite.

(9) Have post-construction testing performed for field permeability in accordance with ASTM D6931, ASTM D3385, ASTM D5093, or other methods acceptable to Ohio EPA.

(10) Be described in a certification report, signed and sealed by a professional engineer registered in the state of Ohio, containing a narrative that proposes the construction details, the range of soil properties that will be used to construct the recompacted soil liner, and the results of all testing pursuant to this paragraph. The report shall be submitted to the appropriate Ohio EPA district office for written concurrence not later than fourteen days prior to the intended construction of the recompacted soil liner that will be modeled by the test pad.

(11) An alternative to test pads may be used if it is demonstrated to the satisfaction of Ohio EPA that the alternative meets the permeability requirements in this rule.

(F) [Reserved.]

(G) Pre-construction interface testing and reporting. The specific soils and representative samples of the geosynthetic materials that will be used at the site shall be tested for interface shear strength over the entire

range of normal stresses that will develop at the facility. Prior to the initial use of each specific geosynthetic material in the construction of engineered components at a facility, the appropriate shear strengths for all soil to geosynthetic and geosynthetic to geosynthetic interfaces that include the material shall be determined at least twice in accordance with ASTM D5321 or ASTM D6243 and at least once for each subsequent construction event using samples of the materials identified by the initial two tests to be at the highest risk for slope failure. Tests involving the flexible membrane liner interface shall be conducted with a recompacted soil that has the highest moisture content and the lowest density specified for construction of the recompacted soil liner. Tests involving geosynthetic clay liner material shall be conducted with hydrated samples. The results of pre-construction testing pursuant to this rule shall meet all applicable specifications in this rule and the set of approved parameters in the permit to install application that were established by the slope stability analysis, be evaluated and signed and sealed by a professional engineer registered in the state of Ohio, and be submitted to the appropriate Ohio EPA district office not later than seven days prior to the intended use of the materials.

[Comment: If a shear stress point plots below the shear strength failure envelope defined by the necessary factor of safety, it will be considered a failed test.]

[Comment: In order to initially test a soil to geosynthetic interface, one should run two tests over the entire range of normal stress to determine the shear strength failure envelope of that interface. Each test should consist of a representative sample of soil and geosynthetic.]

(H) Construction certification report. Pursuant to rule 3745-27-19 of the Administrative Code, a construction certification report shall be prepared and signed and sealed by a professional engineer registered in the state of Ohio and other professionals skilled in the appropriate disciplines, and submitted to Ohio EPA and to the approved board of health. Copies of the daily construction activity logs shall be kept at the facility and be made available to Ohio EPA upon request. The construction certification report shall include the following:

(1) A narrative section that identifies the engineering components that were constructed during the construction event and includes the following:

(a) A summary of the design and construction specifications given in the approved permit to install and a comparison with the components that were constructed during the construction event.

(b) A summary of how construction was impacted by weather and equipment limitations and other difficulties encountered.

(2) All alterations and other changes that relate to the installation of any of the components to be certified, presented as follows:

(a) A listing of all alterations previously concurred with by Ohio EPA.

(b) All alteration requests and supporting documentation that are proposed for concurrence. The alteration request shall be equivalent or more protective than the approved permit to install.

[Comment: Rule 3745-27-19 of the Administrative Code requires that the owner or operator obtain Ohio EPA's written concurrence with the certification report prior to placing waste in the phase. If an alteration will be submitted within a certification report, it is highly recommended that the appropriate district office of Ohio EPA be notified prior to construction. Ohio EPA may not concur with alterations submitted after they are constructed. If this occurs, reconstruction or amendment of the altered component is necessary prior to waste placement.]

(c) A list of any other changes made by the owner or operator that do not require Ohio EPA concurrence

but that affect construction or the record drawings.

[Comment: The listing of these changes is for Ohio EPA's informational purposes only.]

(3) Results of all testing conducted pursuant to this rule and the quality assurance/quality control plan for the construction of any engineered component or group of components. If the results of pre-construction testing of borrow soils were submitted in a format that is acceptable to Ohio EPA, only summary tables of data need to be included in the construction certification report. If a quality assurance/quality control plan is not a requirement of the applicable authorizing document including an approved permit to install, plan approval, operational report, or approved closure plan, the owner or operator shall include at a minimum the results of testing performed, testing procedures, sampling frequency and location, and parameters tested to certify compliance with this rule.

[Comment: All quality assurance/quality control tests that do not meet the specifications outlined in this rule or the approved permit to install are failed tests that need to be investigated and assessed. An area with a verified failure requires reconstruction to meet specifications. Reconstructed areas need to be retested at a frequency acceptable to Ohio EPA. Reconstruction and retesting need to be performed in accordance with rule 3745-27-19 of the Administrative Code.]

(4) Results of all surveys conducted pursuant to this rule, the quality assurance/quality control plan, or the approved permit to install for the construction of any engineered component or group of components. Survey data shall be reported in a table with the northing and easting for each designated survey point established to be no more than one hundred feet apart. The northings and eastings shall be based on the grid system established in the permit in accordance with rule 3745-27-06 of the Administrative Code. If the permit to install does not establish a grid system, the owner or operator shall establish a grid system for the purposes of construction certification. Additional points shall be established at grade breaks and other critical locations. Survey results shall be reported as follows:

(a) For the purpose of confirming the constructed elevations of the composite liner system and its distance to the uppermost aquifer system, the bottom of recompacted soil liner elevations shall be compared to the elevations in the approved permit to install.

(b) The survey grid shall be used to demonstrate the thickness of the following constructed components with a comparison of the constructed thickness to the thickness specified in the approved permit to install:

(i) Added geologic material.

(ii) The recompacted soil liner.

(iii) The leachate collection layer.

(iv) The separatory soil barrier layer.

(v) The separatory leachate collection layer.

(vi) The cap drainage layer.

(vii) The cap protection layer.

(5) Record drawings of the constructed facility components showing the following:

(a) Plan views with topographic representation of the elevations of the top of recompacted soil liner and

the location of any berms and leachate collection pipes with inverts noted.

(b) Plan views with topographic representation of the elevations of the top of the separatory soil barrier layer and the location of any berms and leachate collection pipes with inverts noted.

(c) Plan views with topographic representation of the horizontal limits of all existing waste, the top elevations of the composite cap system, surface water control structures including ditches to control run on and run off; and sedimentation ponds including the inlet and outlet, and any permanent ground water control structures.

(d) Plan views of the deployment of the flexible membrane liner panels, including the location and identification of the destructive tests and all repairs.

(e) The location and as-built detail drawings of all components to be certified using the same views pursuant to rule 3745-27-06 of the Administrative Code.

(f) If the certification report is submitted for the composite cap system, cross sections showing the top elevations of the existing waste, top elevations of the composite cap system, and the elevations of the surface water management system. The cross sections shall be taken at the same locations and using the same scale as in the approved permit to install. If the permit to install does not include cross sections, the cross sections shall be taken at an interval no greater than every three hundred feet of length and width.

(6) After the initial construction and establishment of facility survey marks, the following information summarizing the activities performed to construct and establish the facility survey marks:

(a) The geodetic survey datasheet of each control point used to establish the horizontal and vertical coordinates of the facility survey marks.

(b) A table listing the horizontal and vertical coordinates of each control point and facility survey marks.

(c) A summary of surveying activities performed in determining the coordinates of the facility survey marks.

(d) A plan sheet clearly identifying each control point, the facility survey marks, and the limits of solid waste placement on a road map with a scale of one inch equals no greater than one mile.

(e) A detailed drawing illustrating the design of the facility survey marks, as constructed.

(7) Qualifications of testing personnel. A description of the experience, training, responsibilities in decision making, and other qualifications of the personnel that provided construction oversight and conducted all the testing on the engineered components for which the certification report is submitted.

(8) Documentation demonstrating that any oil or gas wells that have been identified within the limits of solid waste placement have been properly plugged and abandoned in accordance with Chapter 1509. of the Revised Code prior to any construction in the area of the well.

(9) A statement that to the best of the knowledge of the owner or operator, the certification report is true, accurate, and contains all information in accordance with this rule and the quality assurance/quality control plan.

Effective: 4/4/2024

Five Year Review (FYR) Dates: 1/1/2026

CERTIFIED ELECTRONICALLY

Certification

03/18/2024

Date

Promulgated Under: 119.03
Statutory Authority: 3734.02, 3734.12
Rule Amplifies: 3734.02, 3734.12
Prior Effective Dates: 03/01/1990, 06/01/1994, 08/15/2003, 01/01/2021

3745-27-09 Sanitary landfill facility operating record.

(A) Applicability.

The owner or operator of a sanitary landfill facility in operation after June 1, 1994 shall establish an operating record, which shall be an indexed repository of documents pertaining to a single sanitary landfill facility. The owner or operator of a new sanitary landfill facility shall establish the operating record by placing in the operating record the documents specified in paragraph (H) of this rule prior to waste receipt at the sanitary landfill facility.

(B) Location and inspection of operating record. The operating record shall be located at the sanitary landfill facility. Upon the commencement of the post-closure care period for all units of a sanitary landfill facility, the director may approve an alternative location for the operating record. Upon request by Ohio EPA or the approved board of health or their authorized representative, the owner or operator shall provide a copy of the operating record index or make the operating record available for inspection during normal business hours.

(C) Contents of documents in operating record.

(1) All documents submitted into the operating record shall comply with the requirements of the applicable regulations.

(2) The owner or operator may revise documents previously placed in the operating record by placing the revised document, or the revised portion of the document, into the operating record. The owner or operator shall clearly indicate in the revised document the changes made to the document.

(3) The owner or operator shall not submit documents or revisions to documents to the operating record that constitute either of the following:

(a) A modification, as that term is defined in rule 3745-27-02 of the Administrative Code, without first obtaining a permit to install from Ohio EPA.

(b) An alteration without first obtaining written concurrence from Ohio EPA.

(D) Review of documents by Ohio EPA. Ohio EPA may review documents in the operating record and require changes or additional submissions if the documents do not satisfy the requirements of Chapter 3745-27 of the Administrative Code. Upon receipt of notification that a document does not comply with the applicable requirements specified in Chapter 3745-27 of the Administrative Code, the owner or operator shall change the document to attain compliance with the applicable requirements.

(E) Annual update of the operating record. The owner or operator shall update the operating record and the operating record index at a minimum annually, not later than April first of each year during both the operating life of the facility and the post-closure care period, by placing all new documents or revisions to existing documents into the operating record.

(F) Removal of documents from the operating record. Documents shall not be removed from the operating record without the written approval of the appropriate Ohio EPA district office. Such written approval shall clearly identify the documents to be removed and the circumstances justifying removal. Pages or plan sheets of documents in the operating record may be removed without prior approval when corresponding revised pages or plan sheets have been submitted into the operating record in accordance with this rule.

(G) Signature.

(1) Documents or revisions to documents submitted to the operating record shall be signed by the owner or

operator and the person responsible for the preparation or review of the documents, if not the owner or operator.

(2) The signature shall constitute a personal affirmation that to the best of the knowledge of the signor the submitted documents are true and complete and comply with the requirements of Chapter 3734. of the Revised Code and the rules adopted thereunder.

(H) Operating record contents. The operating record shall consist of the following documents:

(1) An operating record index that clearly identifies each document in the operating record, the date of each document's initial submittal, and the date of all subsequent revisions submitted into the operating record. The operating record index shall include a summary of the contents of each document and a description of each revision made to a document.

(2) The approved permit to install, operational report, or plan approval, whichever documents are applicable. In addition, if not contained in the permit to install application, include the following as appropriate:

(a) The PCB and hazardous waste prevention and detection program pursuant to rule 3745-27-19 of the Administrative Code.

(b) Financial assurance instruments for final closure and post-closure care pursuant to rules 3745-27-15 and 3745-27-16 of the Administrative Code.

(c) The explosive gas monitoring plan pursuant to rule 3745-27-12 of the Administrative Code.

(d) The ground water detection monitoring plan pursuant to rule 3745-27-10 of the Administrative Code.

(e) The final closure/post-closure care plan and all other plans, notifications, and documents pursuant to rule 3745-27-11 of the Administrative Code.

(f) The location restriction demonstrations pursuant to rule 3745-27-20 of the Administrative Code.

(g) The surface water control system structures design, if any, in accordance with rule 3745-27-19 of the Administrative Code.

(3) Copies of any alterations concurred with in writing by Ohio EPA that change the requirements of the approved permit to install, operational report, or plan approval and are not included as a part of a certification report.

(4) For those facilities that designated existing and new units in accordance with paragraph (M) of this rule effective June 1, 1994, the plan drawings pursuant to that paragraph.

(5) The interim composite liner/leachate collection system design, if required by paragraph (A)(2) of rule 3745-27-20 of the Administrative Code.

(6) The annual operational report pursuant to rule 3745-27-19 of the Administrative Code.

(7) Inspection records, generator certifications, waste screening documentation, or notifications for the PCB and hazardous waste prevention and detection program pursuant to rule 3745-27-19 of the Administrative Code.

(8) All construction, final closure, or interim final cover certification reports submitted pursuant to this chapter, after June 1, 1994.

(9) All explosive gas monitoring information collected after June 1, 1994, and all other plans, notifications, and documents prepared or submitted after June 1, 1994, pursuant to rule 3745-27-12 of the Administrative Code.

(10) All ground water monitoring information collected after June 1, 1994, and all other plans, notifications, and documents prepared or submitted after June 1, 1994, pursuant to rule 3745-27-10 of the Administrative Code.

(11) All other notifications and documents prepared pursuant to rule 3745-27-11 of the Administrative Code.

(12) All other documents prepared pursuant to rule 3745-27-14 of the Administrative Code.

(13) The current operating license for the sanitary landfill facility.

(14) Copies of all effective permits issued for the facility by the director under Chapter 3704. or 6111. of the Revised Code and a listing of any pending permit applications submitted for the facility in accordance with Chapter 3704. or 6111. of the Revised Code.

(15) A copy of all administrative and judicial orders, judgments, and settlement agreements issued in accordance with Chapter 3734. of the Revised Code and a copy of all administrative and judicial orders, judgments, and settlement agreements issued after June 1, 1994 in accordance with Chapters 3704., 3767., and 6111. of the Revised Code that pertain to the sanitary landfill facility.

(16) Other environmental monitoring plans, information, or documents prepared pursuant to this chapter after June 1, 1994.

(17) If applicable, the financial assurance instrument for corrective measures pursuant to rule 3745-27-18 of the Administrative Code.

(I) Schedule for implementation of documents in operating record. The owner or operator shall implement the appropriate documents in the operating record in accordance with the schedules and requirements of this chapter.

[Comment: The owner or operator should refer to the following rules for implementation deadlines and requirements: rule 3745-27-10 of the Administrative Code (ground water monitoring program); rules 3745-27-11 and 3745-27-14 of the Administrative Code (final closure and post-closure care); rule 3745-27-12 of the Administrative Code (explosive gas monitoring program); rules 3745-27-15, 3745-27-16, and 3745-27-18 of the Administrative Code (financial assurance); rule 3745-27-19 of the Administrative Code (certification reports, surface water management, PCB and hazardous waste prevention and detection program); and rule 3745-27-20 of the Administrative Code (installation of interim composite liner/leachate collection system, location restriction demonstrations).]

Effective: 4/4/2024

Five Year Review (FYR) Dates: 1/1/2026

CERTIFIED ELECTRONICALLY

Certification

03/18/2024

Date

Promulgated Under: 119.03
Statutory Authority: 3734.02, 3734.12
Rule Amplifies: 3734.02, 3734.12
Prior Effective Dates: 03/01/1990, 06/01/1994, 08/15/2003, 07/01/2004, 01/01/2021

3745-27-10 Ground water monitoring program for a sanitary landfill facility.

(A) Applicability.

(1) General applicability. In accordance with the schedule in paragraphs (A)(2) and (A)(3) of this rule, the owner or operator of a sanitary landfill facility shall implement a ground water monitoring program capable of determining the impact of the facility on the quality of ground water occurring within the uppermost aquifer system and all significant zones of saturation above the uppermost aquifer system underlying the sanitary landfill facility. The ground water monitoring program shall have the following elements:

(a) A ground water detection monitoring program which shall be documented within a ground water detection monitoring plan. The ground water detection monitoring plan shall be submitted into the operating record in accordance with rule 3745-27-09 of the Administrative Code. The ground water detection monitoring plan shall include but is not limited to a description of the following:

(i) A monitoring system in accordance with paragraph (B) of this rule.

(ii) Sampling and analysis procedures, including an appropriate statistical method, in accordance with paragraph (C) of this rule.

(iii) Detection monitoring procedures, including monitoring frequency and a parameter list, in accordance with paragraph (D) of this rule.

(b) A ground water quality assessment monitoring program to be implemented in accordance with paragraph (E). A ground water quality assessment monitoring program includes but is not limited to the following:

(i) A ground water quality assessment plan in accordance with paragraphs (E)(3) and (E)(4) of this rule.

(ii) Determinations of rate, extent, and concentration of waste-derived constituents detected in the ground water in accordance with paragraph (E)(5) of this rule.

(iii) Notification to persons residing on or owning land above the contaminant plume in accordance with paragraph (E)(10) of this rule.

(iv) Submission of a ground water quality assessment report in accordance with paragraph (E)(6) of this rule.

(v) Where applicable, the requirements of paragraphs (B) to (D) of this rule.

(vi) Where applicable, submission of a compliance monitoring plan in accordance with paragraph (E)(7) of this rule.

(c) A corrective measures program to be implemented in accordance with paragraph (F) of this rule. A corrective measures program includes but is not limited to the following:

(i) A corrective measures plan in accordance with paragraphs (F)(2) and (F)(3) of this rule.

(ii) Proposed concentration levels in accordance with paragraph (F)(7) of this rule.

(iii) A public meeting held to discuss the results of the ground water quality assessment report and corrective measures plan with interested persons in accordance with paragraph (F)(4) of this rule.

(iv) Selection and implementation of a corrective measure in accordance with paragraph (F)(10) of this rule.

(v) Where applicable, the requirements of paragraphs (B) to (D) of this rule.

(2) Schedule for implementation of revisions to the ground water monitoring program.

(a) The owner or operator of an operating sanitary landfill facility subject to rule 3745-27-19 of the Administrative Code shall make any applicable revisions to the facility ground water monitoring program, submit revisions to the operating record, and implement any measures required by amendments to this rule not later than two hundred seventy days after the effective date of the rule.

(b) The owner or operator of a sanitary landfill facility that is subject to post closure care in accordance with rule 3745-27-14 of the Administrative Code and that ceased acceptance of waste after March 1, 1990, as determined by the notification required by paragraph (E) of rule 3745-27-11 of the Administrative Code, shall revise their ground water monitoring program to comply with this rule.

The owner or operator of a facility subject to rule 3745-27-09 of the Administrative Code shall submit and implement revisions to the operating record not later than two hundred seventy days after the effective date of this rule. The owner or operator of a facility not subject to rule 3745-27-09 of the Administrative Code shall implement the revisions and submit copies of the revisions to Ohio EPA and the approved health department not later than two hundred seventy days after the effective date of this rule.

[Comment: Owners and operators are only required to revise the portions of the facility's current ground water monitoring plans that do not comply with the amendments to this rule and are not required to submit a whole new plan. All variance approvals issued under the provisions of this rule continue in effect.]

[Comment: All owners or operators of facilities currently operating, and those that have closed since March 1, 1990, shall amend the closure plans and ground water monitoring program plans to comply with this rule. The only exception to this requirement is for those owners or operators required to follow a past version of this rule by an order of the director.]

(c) The owner or operator of a sanitary landfill facility that is subject to post closure care in accordance with rule 3745-27-14 of the Administrative Code and is conducting a ground water monitoring program under findings and orders issued by the director shall continue monitoring, pursuant to the findings and orders.

(d) The owner or operator of a sanitary landfill facility conducting a ground water monitoring program subject to paragraph (A)(2)(c) of this rule may request, on forms prescribed by the director, to comply with rule 3745-27-10 of the Administrative Code except for the provisions of paragraph (A)(2)(c) of this rule. Upon the director's approval of the request, the owner or operator shall then

comply with rule 3745-27-10 of the Administrative Code except for the provisions of paragraph (A)(2)(c) of this rule.

[Comment: There are landfill facilities currently required to follow past versions of this rule due to orders from the director. Paragraph (A)(2)(c) of this rule allows these facilities to continue to follow the orders issued by the director. Paragraph (A)(2)(d) of this rule allows the owners or operators of facilities under orders to follow past versions of this rule to request modification of the applicable order to allow them to follow the current version of this rule.]

(3) The owner or operator shall implement and comply with the requirements of a ground water quality assessment monitoring program when required by paragraph (E) of this rule and a "corrective measures program" when required by paragraph (F) of this rule. Implementation shall be in accordance with the time frames specified in paragraphs (E) and (F) of this rule.

(4) For the purposes of this rule, the ground water monitoring program, which includes the detection monitoring program, and where required, the assessment monitoring and corrective measures programs, are implemented upon the commencement of sampling of ground water monitoring wells in accordance with paragraphs (D), (E), or (F) of this rule.

(5) A qualified ground water scientist shall certify, in accordance with rule 3745-27-09 of the Administrative Code, any ground water detection monitoring plan, the ground water quality assessment plan, the compliance monitoring plan, and the corrective measures plan, and any revisions thereof and reports and data, submitted in accordance with this rule.

(6) The ground water monitoring program shall be documented within the operating record. Any revisions to the ground water monitoring program shall be submitted to the operating record in accordance with rule 3745-27-09 of the Administrative Code prior to implementation of the revisions. The owner or operator of a facility not subject to rule 3745-27-09 of the Administrative Code shall submit copies of the revisions to Ohio EPA and the approved health department prior to implementation of the revisions. No approval is necessary prior to implementing the revisions to the ground water monitoring program unless specifically required by this rule.

(B) Ground water monitoring system.

(1) The ground water monitoring system, for detection monitoring, assessment monitoring, or corrective measures, shall consist of a sufficient number of wells, installed at appropriate locations and depths, to yield ground water samples from both the uppermost aquifer system and any significant zones of saturation that exist above the uppermost aquifer system that do the following:

(a) Represent the quality of the background ground water that has not been affected by past or present operations at the sanitary landfill facility.

(b) Represent the quality of the ground water passing directly downgradient of the limits of solid waste placement.

The director may require or otherwise authorize an owner or operator to conduct surface water monitoring (i.e. seeps, springs or streams) as part of the ground water monitoring system in areas where it may not be practical to place a well. Such surface water samples shall be representative of ground water quality passing directly downgradient of the limits of solid waste placement.

[Comment: The director's authorization to conduct surface water monitoring under this rule should include provisions for sampling procedures, constituents to be analyzed, and analyzing the resulting data.]

(2) Where the uppermost aquifer system exists more than one hundred fifty feet beneath the recompacted clay liner of the sanitary landfill facility, the ground water monitoring system shall consist of a sufficient number of wells, installed at appropriate locations and depths, to yield ground water samples from an adequate number of significant zones of saturation, in accordance with paragraphs (B)(1)(a) and (B)(1)(b) of this rule, to ensure detection of any contaminant release from the facility.

(3) All monitoring wells shall be designed, installed, and developed in a manner that allows the collection of ground water samples that are representative of ground water quality in the geologic unit being monitored, and that are in accordance with the following criteria:

(a) Monitoring wells shall be cased in a manner that maintains the integrity of the monitoring well boreholes.

(b) The annular space (i.e., the space between the borehole and the well casing) above the sampling depth shall be sealed to prevent the contamination of the samples and the ground water.

(c) The casing shall be screened or perforated and surrounded by sand or gravel in such a way that allows for the following:

(i) For the minimization of the passage of formation materials into the well.

(ii) For the monitoring of discrete portions of the uppermost aquifer system or any significant zones of saturation above the uppermost aquifer system.

(d) The owner or operator shall document in the operating record, in accordance with rule 3745-27-09 of the Administrative Code, the design, installation, development, maintenance and abandonment of any monitoring wells, piezometers, and other measurement, sampling, and analytical devices.

(e) The monitoring wells, piezometers, and other measurement, sampling, and analytical devices shall be operated and maintained to perform to design specifications throughout the life of the monitoring program.

(f) Monitoring wells constructed or used for the purposes of this rule are not required to comply with Chapter 3745-9 of the Administrative Code.

(4) The number, spacing, and depth of ground water monitoring wells shall be as follows:

(a) Based on site specific hydrogeologic information including that information listed in paragraphs (C)(3)(a) to (C)(3)(g) of rule 3745-27-06 of the Administrative Code.

(b) Capable of detecting a release from the sanitary landfill facility to the ground water at the closest practicable location to the limits of solid waste placement.

(5) The owner or operator shall evaluate, at least annually until the end of the post-closure care period, the ground water surface elevation data obtained in accordance with paragraph (C)(3) of this rule to determine whether the requirements of paragraph (B) of this rule for locating the monitoring wells continue to be satisfied. The results of this evaluation including potentiometric maps for every geologic unit monitored shall be included in a report to be submitted to the appropriate Ohio EPA district office

not later than twelve months from the previous report submitted to comply with this paragraph. If the evaluation shows that paragraph (B) of this rule is no longer satisfied, the owner or operator shall immediately revise the number, location, or depth of the monitoring wells to bring the ground water monitoring system into compliance with this requirement and place documentation of the revision into the operating record in accordance with paragraph (B)(3)(d) of this rule.

(C) The owner or operator shall comply with the following requirements regarding ground water sampling, analysis, and statistical methods:

(1) General requirements. The ground water monitoring program shall include consistent sampling and analysis procedures and statistical methods that are protective of human health and the environment and that are designed to ensure monitoring results that provide an accurate representation of ground water quality at the background and downgradient wells installed in accordance with paragraph (B), (D), (E), or (F) of this rule. The following shall be included in the ground water detection monitoring plan, ground water quality assessment monitoring plan, compliance monitoring plan, and corrective measures plan:

(a) A written sampling and analysis plan, which documents the sampling and analysis procedures that shall be utilized in the ground water monitoring program. The owner or operator is required to use the procedures documented within the sampling and analysis plan.

[Comment: The analysis methods used, including method detection limits and practical quantitation limits for the constituents analyzed, do not have to be documented within the sampling and analysis plan. They do have to be submitted with the analysis data as required in paragraph (C)(10) of this rule.]

(b) The statistical method selected by the owner or operator shall be in accordance with paragraphs (C)(6) and (C)(7) of this rule.

(c) The statistical determination of a statistically significant increase over background for a monitoring parameter shall be in accordance with paragraph (C)(8) of this rule.

(d) The number of samples collected shall be in accordance with paragraph (C)(9) of this rule.

(e) Submission of ground water and statistical analysis shall be in accordance with paragraph (C)(10) of this rule.

(2) A sampling and analysis plan shall at a minimum include a detailed description of the equipment, procedures, and techniques to be used for the following:

(a) Measurement of ground water elevations.

(b) Detection of immiscible layers.

(c) Collection of ground water samples, including the following:

(i) Well evacuation.

(ii) Sample withdrawal.

(iii) Sample containers and handling.

(iv) Sample preservation.

(d) Performance of field analysis, including the following:

(i) Procedures and forms for recording raw data and the exact location, time, and facility-specific conditions associated with the data acquisition.

(ii) Calibration of field devices.

(e) Decontamination of equipment.

(f) Chain of custody control, including the following:

(i) Standardized field tracking reporting forms to record sample custody in the field prior to and during shipment.

(ii) Sample labels containing all information necessary for effective sample tracking.

(g) Field and laboratory quality assurance and quality control, including the following:

(i) Collection of duplicate samples during each sampling event.

(ii) Collection of field and equipment blanks if non-dedicated sampling equipment is used.

(iii) Collection of trip blanks.

The number of duplicate samples, field blanks, trip blanks, and equipment blanks shall be enough to adequately demonstrate the accuracy of the analysis results.

(h) The identification of well maintenance problems encountered during routine sampling of the wells and the process to assure that necessary maintenance is performed.

(3) Ground water elevations.

(a) Measurement of ground water elevations.

(i) Ground water elevations shall be measured in all wells to be sampled that round of sampling prior to any purging and sampling.

(ii) The total depth of the monitoring wells shall be measured in all wells at least annually for those wells that do not have a dedicated pump installed. The depth of monitoring wells with a dedicated pump shall be measured whenever maintenance allows and the dedicated pump is removed for service or replacement.

(iii) Ground water elevations in all wells monitoring the same units or portion of units of a sanitary landfill facility shall be measured within a period of time short enough to avoid temporal variations in ground water flow which could preclude an accurate determination of ground water flow rate and direction, but within a period of time not to exceed twenty-four hours.

(b) The owner or operator shall semiannually determine ground water flow directions in the uppermost aquifer system and all significant zones of saturation monitored. For sampling events other than semiannual or background monitoring events, the owner or operator shall determine ground water flow directions for any zone monitored whenever more than half of the wells in that zone are

sampled during that event.

(c) Potentiometric maps shall be constructed using the collected ground water elevation measurements and shall be included with the sampling data submittal.

(4) The owner or operator shall establish background ground water quality, unless the exception in paragraph (C)(5) of this rule applies, by analyzing ground water samples collected from hydraulically upgradient wells for each of the monitoring parameters or constituents required in the ground water monitoring program.

(5) Background ground water quality at a sanitary landfill facility may be based on sampling of wells that are not hydraulically upgradient where either of the following occur:

(a) Hydrogeologic conditions do not allow the owner or operator to determine which wells are upgradient.

(b) Sampling of other wells will provide an indication of background ground water quality that is as representative or more representative than that provided by upgradient wells.

(6) Statistical methods. Not later than ninety days after completing collection of the eight background samples necessary to comply with paragraphs (D)(5)(a)(ii) and (D)(5)(b)(ii) of this rule but not later than four hundred fifty days after implementing the ground water monitoring program, the owner or operator shall specify one of the following statistical methods to be used in evaluating ground water monitoring data. The statistical method chosen shall be conducted separately for each of the parameters required to be statistically evaluated in paragraph (D)(5) of this rule. The statistical method specified shall ensure protection of human health and the environment and shall comply with the performance standards outlined in paragraph (C)(7) of this rule. The owner or operator shall submit to the operating record any changes made to the statistical method. For owners or operators not subject to rule 3745-27-09 of the Administrative Code, submit to Ohio EPA any changes made to the statistical method. This submission of the revised statistical method shall be made thirty days prior to submitting to the operating record and Ohio EPA the first set of ground water analytical data analyzed using the revised statistical method. The statistical method specified shall be selected from one of the following:

(a) A tolerance or prediction interval procedure in which an interval for each constituent is established from the distribution of the background data, and the level of each constituent in each monitoring well is compared to the upper tolerance or prediction limit.

(b) A control chart approach that gives control limits for each constituent.

(c) A parametric analysis of variance ("ANOVA") followed by multiple comparisons procedures to identify statistically significant evidence of contamination. This shall include estimation and testing of the contrasts between the mean of each monitoring well and the background mean levels for each constituent.

(d) An analysis of variance ("ANOVA") based on ranks followed by multiple comparisons procedures to identify statistically significant evidence of contamination. This shall include estimation and testing of the contrasts between the median of each monitoring well and the background median levels for each constituent.

(e) Another statistical test method submitted by the owner or operator and approved by the director or the director's authorized representative.

[Comment: The statistical method to be used during the initial statistical comparison required under paragraph (D)(5) of this rule needs to be submitted not later than ninety days after collecting the eighth background sample. If it is anticipated that the statistical method to be used will be an intrawell method, then the statistical plan shall be submitted not later than ninety days after the eighth sample has been collected from the well in question. If it is anticipated that the statistical method to be used will be an interwell method, then the statistical plan shall be submitted ninety days after a total of eight samples have been collected from the background wells. The eight background samples collected shall be evenly distributed across all background wells.]

(7) Performance standards for statistical methods. Any statistical method chosen in accordance with paragraph (C)(6) of this rule shall comply with the following performance standards as appropriate:

(a) The statistical method used to evaluate ground water monitoring data shall be appropriate for the distribution of chemical parameters or waste-derived constituents. If the distribution of the chemical parameters or waste-derived constituents is shown by the owner or operator to be inappropriate for a normal theory test, then the data should be transformed or a distribution free theory test should be used. If the distributions for the constituents differ, more than one statistical method may be needed.

(b) If an individual well comparison procedure is used to compare an individual monitoring well constituent concentration with background constituent concentrations or a ground water concentration level, the test shall be conducted at a type I error level not less than 0.01 for each testing period. If multiple comparisons procedures are used, the type I experimentwise error rate for each testing period shall be not less than 0.05; however, the type I error rate of not less than 0.01 for individual monitoring well comparisons shall be maintained. This performance standard does not apply for tolerance intervals, prediction intervals, or control charts.

(c) If a control chart approach is used to evaluate ground water monitoring data, the specific type of control chart and its associated parameter values shall be protective of human health and safety and the environment. The parameters shall be determined after considering the number of samples in the background data base, the date distribution, and the range of the concentration values for each constituent.

(d) If a tolerance interval or a prediction interval is used to evaluate ground water monitoring data, the levels of confidence, and for tolerance intervals, the percentage of the population that the interval must contain, shall be protective of human health and safety and the environment. These parameters shall be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern.

(e) The statistical method shall account for data below the limit of detection with one or more statistical procedures that ensure protection of human health and the environment. Any practical quantitation limit (PQL) used in the statistical method shall be the lowest concentration level that can be reliably achieved within the specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility.

(f) If necessary, the statistical method shall include procedures to control or correct for seasonal and spatial variability as well as temporal correlation in the data.

(g) Background data can be added only in blocks of data resulting from the analysis of four or more statistically independent samples after the data have been statistically compared to the current background data and no statistical differences are detected, unless another method is deemed acceptable to the director.

(h) Prior to using an intra-well statistical method under the ground water detection monitoring program, the owner or operator shall submit to the operating record in accordance with rule 3745-27-09 of the Administrative Code a demonstration that the ground water has not been affected by the landfill within the relevant wells. The owner or operator of a facility not subject to rule 3745-27-09 of the Administrative Code shall submit copies of the revisions to Ohio EPA and the approved health department.

(8) Determination of a statistically significant increase over background. The owner or operator shall determine whether or not there is a statistically significant increase over background for each parameter or constituent required to be statistically analyzed within the ground water monitoring program. The owner or operator shall make this determination each time the owner or operator assesses ground water quality. To determine whether a statistically-significant increase has occurred, the owner or operator shall compare the ground water quality of each parameter or constituent at each downgradient ground water monitoring well to the background value of that parameter or constituent according to the statistical procedures specified in paragraphs (C)(6) and (C)(7) of this rule.

(9) Sample number. The number of samples collected to establish ground water quality data shall be consistent with the appropriate statistical procedures determined pursuant to paragraphs (C)(6) and (C)(7) of this rule. The sampling procedures shall be those specified under paragraph (D) of this rule for detection monitoring, paragraph (E) of this rule for assessment or compliance monitoring, and paragraph (F) of this rule for corrective measures.

(10) Submission of results. All ground water elevation, sample analysis, and statistical analysis results generated in accordance with paragraphs (B), (C), (D), (E) and (F) of this rule shall be submitted to Ohio EPA not later than seventy-five days after sampling the well. All ground water data and an accompanying text shall be submitted to Ohio EPA in a form specified by the director or his authorized representative. The data and accompanying text required to be submitted in accordance with this paragraph shall be placed in the operating record in accordance with rule 3745-27-09 of the Administrative Code. The accompanying text shall consist of at a minimum the following:

(a) Lab data sheets.

(b) Field and laboratory quality assurance/quality control (QA/QC) data.

(c) Chain of custody and sample receipt forms including preservation methods.

(d) Data summary tables.

(e) Statistical analysis results and summary tables including the results from any test for normality conducted on the semiannual sampling event data being submitted.

(f) The potentiometric maps required by paragraph (C)(3) of this rule.

(g) A description of the analysis methods used including method detection limits, and practical quantitation limits for the constituents analyzed.

[Comment: The items requested in paragraph (C)(10) of this rule, may be submitted on an electronic format compatible with Ohio EPA software.]

(D) Ground water detection monitoring program. The owner or operator shall comply with the following requirements regarding ground water detection monitoring:

(1) Monitoring parameters. The owner or operator shall determine the concentration or value of the parameters listed in appendix I to this rule in ground water in accordance with paragraph (D) of this rule.

(2) Alternate monitoring parameter list.

(a) The owner or operator of a sanitary landfill facility may propose in writing to delete any of the monitoring parameters contained in appendix I to this rule to meet the requirements of paragraphs (D)(5) to (D)(7) of this rule. The director may approve the alternative list of monitoring parameters if the removed parameters are not reasonably expected to be in or derived from the waste contained or deposited in the sanitary landfill facility. Upon approval by the director or the director's authorized representative, the owner or operator may use the alternative list. The owner or operator shall at a minimum consider the following factors in proposing an alternative parameter list:

(i) Which of the parameters specified in appendix I to this rule shall be deleted from the parameters required to be monitored in paragraph (D)(5) of this rule.

(ii) The types, quantities, and concentrations of constituents in wastes managed at the sanitary landfill facility.

(iii) The concentrations of the constituents in the leachate contained in appendix I to this rule from the relevant units of the sanitary landfill facility.

(iv) Any other relevant information that the director or the director's authorized representative deems necessary.

(b) The owner or operator of a sanitary landfill facility may delete 1,2- Dibromoethane (EDB) and 1,2-Dibromo-3-chloropropane (DBCP) from the constituents used to meet paragraphs (D)(5) to (D)(7) of this rule upon demonstration that there has never been a confirmed detection of EDB or DBCP in the ground water at the sanitary landfill facility.

(c) The owner or operator of a new sanitary landfill facility may delete 1,2- Dibromoethane (EDB) and 1,2-Dibromo-3-chloropropane (DBCP) from the constituents used to meet paragraphs (D)(5) to (D)(7) of this rule upon demonstration that there has never been a confirmed detection of EDB or DBCP in the ground water at the sanitary landfill facility during the first one hundred eighty days (four samples) of ground water monitoring.

(3) Alternate inorganic parameter list. The owner or operator of a sanitary landfill facility may propose in writing that an alternative list of inorganic indicator parameters be used to meet paragraph (D)(5) of this rule in lieu of some or all of the inorganic parameters listed in appendix I to this rule. The director shall approve the alternative inorganic indicator parameters if the alternative list will provide a reliable indication of inorganic releases from the sanitary landfill facility to the ground water. Upon approval by

the director or the director's authorized representative, the owner or operator shall use the alternative list. The owner or operator shall at a minimum consider the following factors in proposing an alternative inorganic parameter list:

(a) The types, quantities, and concentrations of constituents in wastes managed at the sanitary landfill facility.

(b) The mobility, stability, and persistence of waste constituents or their reaction products in the unsaturated zone beneath the sanitary landfill facility.

(c) The detectability of the indicator parameters, waste constituents, and their reaction products in the ground water.

(d) The concentrations or values and coefficients of variation of monitoring parameters or constituents in the background ground water quality.

(4) Alternative parameters for low-yield wells not screened in the uppermost aquifer system. The owner or operator may propose in writing, that an alternative list of any of the monitoring parameters contained in appendix I to this rule be used to meet paragraph (D)(5)(c) of this rule for those monitoring wells not screened in the uppermost aquifer system that cannot produce enough water within a twenty-four hour period to allow for the analysis of all of the required parameters. Upon approval by the director or the director's authorized representative, the owner or operator may use the alternative parameter list. The owner or operator shall at a minimum consider the following factors in proposing an alternative list for low-yield wells not screened in the uppermost aquifer:

(a) Whether the monitoring well is constructed in accordance with paragraph (B)(3) of this rule.

(b) Whether the well screen is properly placed across the significant zone or saturation in order to maximize yield.

(c) A calculation of the maximum sustainable yield of the significant zone of saturation.

(d) Field data demonstrating the time necessary for the well to recover completely after purging.

(e) The amount of water needed to analyze for all required parameters. This should include a discussion of which parameters will be deleted and the amount of water needed to analyze for these deleted parameters as well as the listing of the parameters which will be analyzed for in the samples and how much water is required to analyze for these parameters.

(5) Monitoring parameters, frequency, and location. The owner or operator shall monitor the ground water monitoring well system in accordance with the following:

(a) For monitoring wells screened within the uppermost aquifer system beneath the sanitary landfill facility, the owner or operator shall, during the active life of the facility (including final closure) and the post-closure care period, monitor the wells:

(i) For one of the following parameter lists:

(a) Parameters 1 through 66 contained in appendix I to this rule.

(b) The alternative parameter list approved in accordance with paragraphs (D)(2) or (D)(3) of this

rule.

(ii) At least semiannually by collecting the following samples:

(a) During the initial one hundred and eighty days after implementing the ground water detection monitoring program, the owner or operator shall collect a minimum of four independent samples from each monitoring well screened in the uppermost aquifer system (background and downgradient). After collection of the initial four samples not later than one hundred and eighty days after implementing the ground water monitoring program, the owner or operator shall collect a minimum of four additional, independent samples from each monitoring well screened in the uppermost aquifer system (background and downgradient) on a quarterly sampling schedule until a minimum total of eight independent samples are obtained to establish background. The eight or more independent samples obtained from each monitoring well shall be analyzed for parameters specified in paragraph (D)(5)(a)(i) of this rule and shall be used to establish background to fulfill the statistical analysis provisions of this rule. The owner or operator of a sanitary landfill facility with an existing ground water monitoring system may use existing data to meet the provisions of this paragraph provided the information required pursuant to paragraph (C) of this rule is available.

[Comment: Existing data to meet the provision of the above rule is allowed provided that the sampling and analysis procedures used to collect and analyze the sample are documented, available for review and consistent with paragraph (C)(1) of this rule.]

(b) Beginning two years after implementing the ground water detection monitoring program and continuing during subsequent semiannual sampling events, at least one sample from each monitoring well screened in the uppermost aquifer system (background and downgradient) must be collected and analyzed for the parameters specified in paragraph (D)(5)(a)(i) of this rule.

(iii) Beginning with receiving the results from the first monitoring event collected pursuant to paragraph (D)(5)(a)(ii)(b) of this rule and semiannually thereafter, by statistically analyzing the results from wells screened in the uppermost aquifer system for the parameters specified in paragraph (D)(5)(a)(i) of this rule.

(b) For monitoring wells not screened in the uppermost aquifer system at the sanitary landfill facility, the owner or operator shall, during the active life of the facility (including final closure) and the post-closure care period, monitor the wells:

(i) For one of the following parameter lists:

(a) Parameters numbered 18, 25, 33, 61, 63, 64, 65, and 66, contained in appendix I to this rule.

(b) The alternate parameter list approved in accordance with paragraphs (D)(2), (D)(3) or (D)(4) of this rule.

(ii) At least semiannually by collecting the following samples:

(a) During the initial one hundred and eighty days after implementing the ground water detection monitoring program, the owner or operator shall collect a minimum of four independent samples from each monitoring well not screened in the uppermost aquifer system (background and downgradient). After collection of the initial four samples not later than one hundred and eighty days after implementing the ground water monitoring program, the owner or operator shall collect a minimum of four additional, independent samples from each monitoring well not screened in the uppermost aquifer system (background and downgradient) on a quarterly sampling schedule until a minimum total of eight independent samples are obtained to establish background. The eight or more independent samples obtained from each monitoring well shall be analyzed for the parameters specified in paragraph (D)(5)(b)(i) of this rule and shall be used to establish background to fulfill the statistical analysis provisions of this rule. The owner or operator of a sanitary landfill facility with an existing ground water monitoring system may use existing data to meet the provisions of this paragraph provided the information required pursuant to paragraph (C) of this rule is available.

[Comment: Existing data to meet the provisions of the above rule is allowed provided that the sampling and analysis procedures used to collect and analyze the sample are documented, available for review and consistent with paragraph (C)(1) of this rule.]

(b) Beginning two years after implementing the ground water detection monitoring program and continuing during subsequent semiannual sampling events, at least one sample from each monitoring well not screened in the uppermost aquifer system (background and downgradient) must be collected and analyzed for the parameters specified in paragraph (D)(5)(b)(i) of this rule.

(iii) Beginning with receiving the results from the first monitoring event collected pursuant to paragraph (D)(5)(b)(ii)(b) of this rule and at least semiannually thereafter, by statistically analyzing the results from monitoring wells not screened within the uppermost aquifer system for the parameters specified in paragraph (D)(5)(b)(i) of this rule.

(c) All monitoring wells shall be monitored for constituents contained in appendix I to this rule or the alternative parameter list approved in accordance with paragraphs (D)(2), (D)(3), or (D)(4) of this rule at least annually during the active life of the sanitary landfill facility (including final closure) and during the post-closure care period.

(d) At least one sample from each well in the monitoring system per sampling event shall be field analyzed for parameters 67, 68, and 69 listed in appendix I to this rule.

(e) If a new well or replacement well is to be added to an existing monitoring system, the owner or operator shall statistically analyze the ground water analysis data from the well in accordance with the applicable rules as soon as possible but not later than two years from the date that the well is added to the monitoring system.

(6) Alternative sampling and statistical analysis frequency. During the active life (including final closure) of a sanitary landfill facility and the post-closure care period, the owner or operator may propose in writing

an alternative frequency for ground water sampling and statistical analysis required by paragraph (D)(5) of this rule. The director or the director's authorized representative may approve a proposed alternative frequency provided the alternative frequency sampling and analysis frequency is not less than annual. Upon approval by the director or the director's authorized representative, the owner or operator may use the alternative sampling or analysis frequency. The owner operator shall at a minimum consider the following factors in proposing an alternative sampling and analysis frequency:

(a) Lithology of the aquifer system and all stratigraphic units above the uppermost aquifer system.

(b) Hydraulic conductivity of the uppermost aquifer system and all stratigraphic units above the uppermost aquifer system.

(c) Ground water flow rates for the uppermost aquifer system and all zones of saturation above the uppermost aquifer system.

(d) Minimum distance between the upgradient edge of the limits of waste placement of the sanitary landfill facility and the downgradient monitoring well system.

(e) Resource value of the uppermost aquifer system.

(7) Determination of a statistically significant increase over background in detection monitoring parameters.

(a) The owner or operator shall comply with paragraph (D)(7)(b) of this rule, if the owner or operator determines a statistically significant change, according to the statistical procedures specified in paragraphs (C)(6) and (C)(7) of this rule, for any of the following:

(i) Parameters 1 through 66 contained in appendix I to this rule, or the alternate parameter list approved in accordance with paragraphs (D)(2) or (D)(3) of this rule in samples from monitoring wells screened in the uppermost aquifer system.

(ii) Parameters 18, 25, 33, 61, 63, 64, 65, and 66 contained in appendix I to this rule or the alternate parameter list approved in accordance with paragraphs (D)(2), (D)(3), or (D)(4) of this rule in samples for all monitoring wells not screened in the uppermost aquifer system.

(b) The owner or operator shall submit a written notification to Ohio EPA of a statistically significant increase over background not later than seventy-five days after withdrawing a sample from the well that upon analysis demonstrates a statistically significant change. A copy of this notification shall be placed in the operating record in accordance with rule 3745-27-09 of the Administrative Code. The notification must indicate which wells and parameters have shown a statistically significant increase over background levels.

(c) Demonstration of a false positive. The owner or operator may do one of the following to demonstrate a false positive:

(i) Use the "1 of M" resampling method to demonstrate that the statistically significant increase over background was a false positive. The "1 of M" resampling method to be used shall be documented within the statistical analysis plan required by paragraph (C)(6) of this rule and shall be protective of human health and safety and the environment. The number of resamples to be used shall be documented with the statistical method specified by the owner or operator as

required by paragraph (C)(6) of this rule. If the owner or operator demonstrates using the "1 of M" resampling method that the statistically significant increase over background was a false positive, then the owner or operator may return to detection monitoring. The owner or operator shall submit a report certified by a qualified ground water scientist documenting the demonstration to Ohio EPA not later than one hundred and eighty days after initial sampling.

[Comment: The "1 of M resampling method" is a statistical resampling procedure to verify the statistically significant increase over background determined for the first sample taken from a monitoring well. The number of resamples used with the method will vary depending on the number of background samples available. The number of resamples usually does not exceed two. As an example, for the Ohio EPA, a "1 of 2 method" means the original sample plus one resample with the analysis data from both samples having to demonstrate a statistically significant increase above background in order for the owner or operator to make a new determination of the concentration of any contaminant released and the rate and extent of migration of the contaminants release to ground water.]

(ii) Demonstrate that the statistically significant increase over background resulted from a source other than the sanitary landfill, or error in the sampling, analysis, or statistical evaluation, or from natural variation in ground water quality. A report certified by a qualified ground water scientist documenting this demonstration shall be submitted to the appropriate Ohio EPA district office not later than ninety days after initial sampling. Upon notification by the director that the report does not successfully demonstrate that the statistically significant increase over background resulted from a source other than the sanitary landfill, or error in the sampling, analysis, or statistical evaluation, or from natural variation in ground water quality, the owner or operator shall comply with the provisions of paragraph (E) of this rule.

[Comment: The reports under paragraph (D)(7)(c) of this rule are required to be certified by a qualified ground water scientist in accordance with paragraph (A)(5) of this rule.]

(E) Ground water quality assessment monitoring program. The owner or operator shall comply with the following requirements regarding ground water quality assessment monitoring:

(1) General requirements. Upon determining a statistically significant increase above background in accordance with paragraph (D)(7) of this rule, the owner or operator shall implement a ground water quality assessment program and submit a ground water quality assessment plan in accordance with either of the following:

(a) Not later than two hundred ten days after detection of a statistically significant increase above background.

(b) Not later than ninety days after notification by the director that the report submitted under paragraph (D)(7)(c)(ii) does not successfully make the required demonstration if the owner or operator has submitted a demonstration in accordance with paragraph (D)(7)(c)(ii) of this rule.

[Comment: The ground water quality assessment plan is required to be certified by a qualified ground water scientist in accordance with paragraph (A)(5) of this rule. The ground water quality assessment plan is a self-implementing plan which does not require approval from Ohio EPA prior to

implementation by the owner or operator.]

(2) The owner or operator may undertake during the implementation of the ground water quality assessment program, activities necessary to prevent the continued release of waste-derived constituents from the regulated unit to the ground water. Any activities undertaken by the owner or operator in accordance with this paragraph shall be in compliance with all applicable federal and Ohio statutes and regulations.

(3) Ground water quality assessment plan elements. The plan to be submitted in accordance with paragraph (E)(1) of this rule shall include at a minimum detailed descriptions of the following:

(a) Hydrogeologic conditions at the sanitary landfill facility.

(b) The detection monitoring program implemented by the sanitary landfill facility, including the following:

(i) The number, location, depth, and construction of detection monitoring wells with documentation.

(ii) A summary of detection monitoring ground water analytical data with documentation of the results.

(iii) A summary of statistical analyses applied to the data.

(c) The investigatory approach to be followed during the assessment, including but not limited to the following:

(i) The proposed number, location, depth, installation method, and construction of assessment monitoring wells.

(ii) The proposed methods for gathering additional hydrogeologic information.

(iii) The planned use of supporting methodology (i.e., soil gas or geophysical surveys).

(d) The techniques, procedures, and analytical equipment to be used for ground water sampling during the assessment. This description shall include those sampling and analysis elements listed within paragraph (C)(2) of this rule.

(e) Data evaluation procedures, including but not limited to the following:

(i) Planned use of statistical data evaluation for the ground water quality assessment program or for compliance monitoring.

(ii) Planned use of computer models.

(iii) Planned use of previously gathered information.

(iv) Criteria which will be utilized to determine if additional assessment activities are warranted.

(f) A schedule of implementation which incorporates the requirements specified in paragraph (E)(4) of this rule.

(g) Provisions for installing additional wells, as necessary, for determining the nature and extent of any release of waste-derived constituents per paragraph (E)(5) of this rule.

(h) Provisions for installing at least one additional monitoring well at the facility boundary in the direction of downgradient ground water flow from the affected well and as many additional wells as necessary to meet the provisions of paragraph (E)(5) of this rule.

(4) Assessment monitoring schedule, frequency, and parameters.

(a) Not later than the date required to submit the ground water quality assessment plan in accordance with paragraph (E)(1) of this rule, the owner or operator shall sample the affected wells and analyze the samples for all waste-derived constituents, including all constituents listed in appendix I and appendix II to this rule. Any background wells within the flow path or closest to the affected well and screened within the same geologic unit as the affected well shall be sampled and analyzed for parameters contained in appendix I and appendix II to this rule.

(b) Not later than seventy-five days after commencing the sampling required in paragraph (E)(4)(a) of this rule, sample all monitoring wells screened within the same geologic units at the facility as the affected well not sampled under paragraph (E)(4)(a) of this rule. These samples shall be analyzed for those waste-derived constituents found to be above background levels in the affected monitoring wells sampled under paragraph (E)(4)(a) of this rule.

(c) The owner or operator shall sample all monitoring wells in the ground water quality assessment monitoring program as follows. A monitoring well is considered part of the ground water quality assessment monitoring program if the well is needed or used to meet the provisions of paragraph (E)(5) of this rule:

(i) At least semiannually for the following:

(a) All parameters contained in appendix I to this rule or the alternative parameter list approved under paragraph (D)(2), or (D)(3) of this rule.

(b) All the constituents reported to the director in accordance with (E)(4)(d) of this rule.

(ii) At least annually for one of the following.

(a) All parameters contained in appendix II to this rule.

(b) The remaining parameters contained in appendix II to this rule if the director has deleted one or more parameters contained in appendix II to this rule in accordance with (E)(4)(e) of this rule.

(d) Not later than seventy-five days after sampling the ground water monitoring wells in accordance with paragraph (E)(4)(a) of this rule and after all subsequent samplings, the owner or operator shall place a notice in the operating record identifying all constituents that have been detected. The owner or operator shall send a copy of this notice to the appropriate Ohio EPA district office and the approved health department.

[Comment: Paragraph (C)(10) of this rule requires all ground water analysis and statistical analysis results to be submitted to the operating record not later than seventy-five days after sampling a monitoring well.]

(e) Not later than one hundred and eighty days after implementing the ground water quality assessment plan, the owner or operator shall collect additional statistically independent samples (a minimum of four) from any background well sampled pursuant to paragraph (E)(4)(a) of this rule that does not have at least four independent analysis results of each waste-derived constituent detected in the monitoring wells, demonstrating a statistically significant increase.

[Comment: Except for paragraph (E)(8)(a) of this rule, no statistical evaluation of any data is required to be performed under the ground water quality assessment program.]

(f) Upon the written request of the owner or operator, the director may delete any of the monitoring parameters contained in appendix II to this rule for a sanitary landfill facility if the owner or operator can show that the deleted constituents are not reasonably expected to be in or derived from the waste contained in the.

(g) After sampling in accordance with paragraph (E)(4)(a) of this rule, the owner or operator may delete 1,2- Dibromoethane (EDB) and 1,2-Dibromo-3-chloropropane (DBCP) from the constituents used to meet paragraph (E) of this rule upon demonstration that there has never been a confirmed detection of EDB or DBCP in the ground water at the sanitary landfill facility.

(h) Ground water monitoring wells not used to make a determination according to paragraph (E)(5) of this rule shall continue to be monitored in accordance with the ground water monitoring program applicable to those wells prior to the initiation of assessment monitoring.

[Comment: If a well was in compliance with the requirements of the ground water detection monitoring program prior to initiation of the ground water assessment monitoring program and the well is not necessary to make a determination in accordance with paragraph (E)(5) of this rule, then the well shall continue to be monitored under the ground water detection monitoring program requirements as the ground water assessment monitoring program continues.]

(5) A determination of rate, extent, and concentration. The owner or operator shall implement the "ground water quality assessment plan" which satisfies the requirements of paragraphs (E)(3) and (E)(4) of this rule and at a minimum determines the following:

(a) The rate and extent of migration of the waste-derived constituents in the ground water.

(b) The concentrations of the waste-derived constituents in the ground water.

This shall include portions of the contaminant plume that exist beyond the facility boundary, unless the owner or operator demonstrates to the director that, despite the owner or operator's best efforts, the owner or operator was unable to obtain the necessary permission to undertake such action. At a minimum, the owner or operator shall submit a copy of their written access request and if a response is provided, a copy of the written statement from the off-site property owner indicating that off-site access is denied. The owner or operator is not relieved of all responsibility to clean up a release that has migrated beyond the facility boundary where off-site access is denied. On-site measures to address such releases will be determined on a case-by-case basis.

(6) Ground water assessment report. The owner or operator shall make a determination according to

paragraph (E)(5) of this rule within the time frame specified in the submitted ground water quality assessment plan. The owner or operator shall submit to the director, not later than fifteen days after making a determination, a written ground water quality assessment report containing an assessment of the ground water quality including all data generated as part of implementation of the ground water quality assessment plan.

(7) After complying with paragraph (E)(5) of this rule, if the release of waste-derived constituents to ground water as characterized within the report required under paragraph (E)(6) of this rule exclusively consists of one or more of parameters numbered 63 through 78 of appendix I to this rule, then the owner or operator may submit a compliance monitoring plan with the ground water quality assessment report submitted in accordance with paragraph (E)(6) of this rule to Ohio EPA and to the operating record in accordance with rule 3745-27-09 of the Administrative Code instead of a corrective measures plan as required under paragraph (F) of this rule. The owners or operators of facilities not subject to rule 3745-27-09 of the Administrative Code may submit the compliance monitoring plan with the ground water quality assessment report submitted in accordance with paragraph (E)(6) of this rule to Ohio EPA. This section of the rule is also applicable to sites meeting the above criteria that have previously submitted corrective measures plans that have not been approved as of the effective date of this rule. These facilities may submit a compliance monitoring plan as an addendum to the existing corrective measures plan. The owner or operator complying with the provisions of this paragraph is exempt from complying with paragraph (E)(11) of this rule, but shall comply with paragraphs (C)(10), (E)(9) and (E)(10) of this rule.

The compliance monitoring plan shall be implemented with the first semiannual sampling event that occurs after the submittal of the compliance monitoring plan. The compliance monitoring plan shall at a minimum include the following:

[Comment: Activities conducted while in compliance monitoring are to demonstrate that the contamination released to the environment continues to be non-hazardous and that the source control measures implemented have limited the growth of the contaminant plume, prevented new contaminants from being released, and stopped the increase in the concentrations of the contaminants already released.]

(a) A description of the monitoring wells to be sampled. The wells to be sampled during compliance monitoring shall at a minimum include all wells that were sampled in order to make a determination under paragraph (E)(5) of this rule.

(b) A description of the techniques, procedures, and analytical equipment to be used for ground water sampling during compliance monitoring. This description shall include those sampling and analysis elements listed within paragraph (C)(2) of this rule.

(c) Provisions for sampling the monitoring wells designated under paragraph (E)(7)(a) of this rule on a semiannual basis and analyzing the samples for the following:

(i) For monitoring wells screened within the uppermost aquifer system beneath the sanitary landfill facility, the parameters required under paragraph (D)(5)(a) of this rule and the waste-derived contaminants determined to have been released from the landfill to the ground water.

(ii) For monitoring wells not screened within the uppermost aquifer system beneath the sanitary landfill facility, the parameters required under paragraph (D)(5)(b) of this rule and the waste-derived constituents determined to have been released from the landfill to the ground water.

(d) Provisions for sampling the monitoring wells designated under paragraph (E)(7)(a) of this rule on an annual basis and analyzing the samples for the parameters required under paragraph (D)(5)(c) of this rule.

(e) Provisions for sampling the monitoring wells designated under paragraph (E)(7)(a) of this rule for the schedule and parameters required under paragraph (D)(5)(d) of this rule.

(f) Provisions for performing statistical analysis on the semiannual analytical results. Statistical analysis shall be performed using the appropriate statistical procedures specified within paragraphs (C)(6) and (C)(7) of this rule. For statistical analysis, the owner or operator shall do the following:

(i) For contaminants determined to have been released to the ground water in accordance with paragraph (E)(5) of this rule, sample and analyze the monitoring wells designated under paragraph (E)(7)(a) of this rule at least eight times during the initial year of compliance monitoring to establish a new, intrawell background unless otherwise approved by the director. Statistical analysis shall commence with the first semiannual sampling event following completion of collecting the background samples.

(ii) Commence statistically analyzing the sampling results of constituents to be monitored in accordance with paragraph (E)(7)(c) of this rule and not being monitored in accordance with paragraph (E)(7)(f)(i) of this rule with the initial sampling event required under this paragraph.

[Comment: The above rule requires that all contaminants released from the facility have a new intrawell statistical background established for them prior to statistically analyzing the results. For those constituents that have not been released from the facility, the old statistical background data set used for detection monitoring is still appropriate to use and statistical analysis may begin for these constituents with the first sampling event required under this paragraph.]

(g) Provisions for fulfilling paragraph (E)(5) of this rule in accordance with paragraph (E) of this rule when a statistically significant increase is determined for parameters 1 through 62 of appendix I to this rule.

[Comment: If a statistical analysis demonstrates a statistically significant increase over background in concentration for parameters 1 through 62 of appendix I to this rule, then the facility is required to update the ground water quality assessment plan and determine the concentration of any contaminant released as well as the rate and extent of migration of the contaminants.]

(h) Provisions for sampling the monitoring wells designated under paragraph (E)(7)(a) of this rule for the parameters listed in appendix II to this rule if any parameter not included within parameters 1 through 62 of appendix I to this rule demonstrates a statistically significant increase over the new

background established under the provisions of paragraph (E)(7)(f) of this rule. If any constituent from appendix II to this rule is detected above background, then the owner or operator shall commence provisions for fulfilling paragraph (E)(5) of this rule in accordance with paragraph (E) of this rule. If no parameters from appendix II to this rule are detected above background, and the parameters detected above background are limited to parameters 63 through 78 of appendix I to this rule, then the owner or operator shall revise the compliance monitoring plan and implement the revised compliance monitoring plan during the next regularly scheduled semiannual sampling event.

[Comment: If a statistical analysis demonstrates a statistically significant increase over the new background in concentration for any parameter other than parameters 1 through 62 of appendix I to this rule, then the facility is required to sample for the parameters within appendix II to this rule. If a parameter contained in appendix II to this rule is detected above background, then the owner or operator is required to update the ground water quality assessment plan and determine the concentration of any contaminant released as well as the rate and extent of migration of the contaminants.]

(i) Provisions for continuing to implement the compliance monitoring plan until the end of the post-closure care period for the sanitary landfill facility unless otherwise approved by the director.

(j) Activities necessary to prevent the continued release of waste-derived constituents to the ground water. The described activities shall be implemented with the submittal of the compliance monitoring plan. The director may require additional activities necessary to prevent the continued release of waste-derived constituents to the ground water.

(k) Provisions for demonstration of a false positive. The owner or operator shall include in the compliance monitoring plan provisions to perform one of the following as appropriate to demonstrate a false positive:

(i) Use the "1 of M resampling method" to demonstrate that the statistically significant increase over background was a false positive. The "1 of M resampling method" to be used shall be documented within the statistical analysis plan required by paragraph (C)(6) of this rule and shall be protective of human health and safety and the environment. The number of resamples to be used shall be documented with the statistical method specified by the owner or operator as required by paragraph (C)(6) of this rule. If the owner or operator demonstrates using the "1 of M resampling method" that the statistically significant increase over background was a false positive, then the owner or operator may continue with ground water monitoring as specified within the submitted compliance monitoring plan. The owner or operator shall submit a report documenting the demonstration to Ohio EPA not later than one hundred and eighty days after initial sampling.

(ii) Demonstrate that a source other than the sanitary landfill facility caused the contamination or that the statistically significant increase over background resulted from error in the sampling, analysis, statistical evaluation, or natural variation in ground water quality. A report documenting this demonstration must be submitted to and approved by the director or the director's authorized representative. If not later than one hundred eighty days after the initial sampling the owner or operator does not obtain approval, then the owner or operator shall comply with the provisions of the compliance monitoring plan consistent with paragraphs (E)(7)(h) to (E)(7)(k) of this rule.

(8) Reinstatement of detection monitoring.

(a) If the owner or operator determines that the concentrations of all waste-derived constituents are shown to be at or below background values at the monitoring wells within the assessment monitoring program, or for those wells within a specific assessment monitoring area within an assessment monitoring program using the statistical procedures described in paragraph (C)(6) of this rule for two consecutive sampling events, then the owner or operator may reinstate the detection monitoring program described in paragraphs (C) and (D) of this rule by notifying the director.

(b) The owner or operator may demonstrate that a source other than the sanitary landfill facility caused the contamination, or that the statistically significant change resulted from error in sampling, analysis, or statistical evaluation, or from natural variation in ground water quality. A report documenting this demonstration must be submitted to director and request that the director approve reinstatement of the detection monitoring program described in paragraphs (C) and (D) of this rule. Until the director approves reinstatement of the detection monitoring program, the owner or operator shall comply with paragraphs (E)(9) and (F) of this rule.

(9) Semiannual determination of rate, extent, and concentration. If the owner or operator determines, based on the determination made according to paragraph (E)(5) of this rule, that waste-derived constituents from the facility have entered the ground water, then the owner or operator shall continue to make the determination required in accordance with paragraph (E)(5) of this rule on a semiannual basis until released from this obligation by the director or unless an alternate time interval is established by the director. The owner or operator shall submit documentation of the semiannual determination of rate, extent, and concentration with the reports required to be submitted in accordance with paragraph (E)(10) of this rule.

(10) Notification of adjacent landowners. After the determination of rate, extent, and concentration in accordance with paragraph (E)(5) of this rule, the owner or operator shall notify by certified mail or any other form of mail accompanied by a receipt all persons who own land or reside on the land that directly overlies, or is reasonably expected to overlie, any part of the plume of the contamination, as determined in accordance with paragraph (E)(4) of this rule, of the rate, extent, and concentration of the waste-derived constituents in the ground water. The owner or operator shall place the return receipts or other evidence of notification into the operating record. Annually, the owner or operator shall re-notify persons or notify additional persons based on the results of the determinations of rate, extent, and concentration in accordance with paragraph (E)(4) of this rule until released from this obligation by the director.

(11) Semiannual assessment activities report. Upon implementation of the ground water quality assessment plan submitted under paragraph (E)(2) of this rule, the owner or operator shall submit a report on the activities being conducted at the facility as part of implementation of the ground water quality assessment plan to the appropriate Ohio EPA district office and to the approved health department. All monitoring and reporting required by paragraph (E) of this rule shall continue until the director releases the owner or operator from this obligation or approves a corrective measure in accordance with paragraph (F)(10) of this rule. Any documents or data previously submitted by the owner or operator

during the six month period need not be submitted with the semiannual report. Previously submitted documents or data shall be referenced within the semiannual report as having been submitted. This report shall be submitted semiannually and contain the following:

(a) A narrative description of all assessment activities that have occurred since the previous report.

(b) All data generated as part of the assessment program since the previous report.

(F) Corrective measures program.

(1) General requirements. Unless otherwise specified in paragraph (E)(7) or (E)(8) of this rule, upon determining in accordance with paragraph (E) of this rule that waste-derived contaminants have been detected in the ground water the owner or operator shall implement a corrective measures program plan capable of evaluating all practicable ground water remediation procedures, attaining the concentration level for waste-derived contaminants detected in the ground water, controlling the source of the release, identifying specific ground water monitoring requirements to monitor the effectiveness of the corrective measures, and eliminating further releases. The owner or operator shall implement the corrective measures program in accordance with the corrective measures plan and this rule.

(2) Corrective measures plan. Unless otherwise specified in paragraph (E)(7) or (E)(8) of this rule, and not later than one hundred and eighty days after making a determination in accordance with paragraph (E)(5) of this rule, the owner or operator shall submit a corrective measures plan to the director and into the operating record. The corrective measures plan shall evaluate all practicable remediation procedures which are available for remediating any contamination discovered during assessment monitoring. The evaluated remediation procedures shall at a minimum do the following:

(a) Be protective of human health and safety and the environment.

(b) Attain the proposed ground water concentration levels specified in accordance with paragraph (F)(7) of this rule.

(c) Control the source of releases to reduce or eliminate, to the maximum extent practicable, further releases of waste-derived constituents into the environment.

(d) Comply with standards for management of wastes as specified in paragraph (F)(13) of this rule.

(e) Contain a revised ground water corrective measures monitoring plan which identifies specific ground water monitoring requirements to monitor the effectiveness of the corrective measures. The ground water corrective measures monitoring plan shall at a minimum contain provisions:

(i) For determining semiannually, that ground water remediation standards established in accordance with paragraph (F)(7) of this rule are achieved for those contaminants determined to have been released to ground water.

(ii) For semiannual monitoring for the presence above background levels of parameters numbered 1-66 of appendix I to this rule determined not to have been released to ground water.

(iii) Which meet the applicable provisions of paragraphs (B) to (D) of this rule.

(3) The owner or operator shall evaluate each proposed remediation procedure within the corrective measures plan. This evaluation shall at a minimum consider the following:

(a) Any potential remediation procedure, which shall be assessed for the long-term and short-term effectiveness and the protection it affords. This shall include the degree of certainty that the remediation procedure will prove successful. Factors to be considered include the following:

(i) Magnitude of reduction of existing risks.

(ii) Magnitude of residual risks in terms of likelihood of further releases due to waste remaining following implementation of a remediation procedure.

(iii) The type and degree of long-term management required, including monitoring, operation, and maintenance.

(iv) Short-term risks that may affect the community, workers, or the environment during implementation of such a remediation procedure, including potential threats to human health and safety and the environment associated with excavation, transportation, redisposal, or containment.

(v) Potential for human and environmental receptor exposure to remaining wastes, considering the potential threat to human health and safety and the environment associated with excavation, transportation, redisposal, or containment.

(vi) Long-term reliability of the engineering and institutional controls.

(vii) Potential need for replacement of the remediation procedure.

(viii) Time until full protection is achieved.

(b) The effectiveness of the remediation procedure in controlling the source in order to reduce further releases, including the following:

(i) The extent to which containment practices will reduce further releases.

(ii) The extent to which treatment technologies may be used.

(c) The need to coordinate with, and obtain necessary approvals and permits from, other agencies.

(d) The available capacity and location of needed treatment, storage, and disposal services.

(e) The ease or difficulty of implementing potential remedies based on consideration of the following types of factors:

(i) Degree of difficulty associated with constructing the technologies.

(ii) Expected operation reliability of the technologies.

(iii) Availability of necessary equipment and specialists.

(f) The degree to which community concerns are addressed by a potential corrective measure.

(g) The performance, reliability, ease of implementation, and potential impacts of the potential remediation procedures, including safety impacts, cross-media impacts, and control of exposure to

any residual contamination.

(h) A schedule for initiating and completing each remediation procedure discussed in the plan. In establishing this schedule, the owner or operator shall consider the following:

(i) The extent and nature of any contamination.

(ii) The practical capability of remedial technologies to achieve compliance with ground water concentration levels established in accordance with paragraph (F)(7) of this rule and other objectives of the remediation procedure.

(iii) The availability of treatment or disposal capacity for wastes managed during implementation of the remediation procedure.

(iv) The desirability of utilizing technologies that are not currently available, but which may offer significant advantages over currently available technologies in terms of protection, reliability, safety, or the ability to achieve remedial objectives.

(v) Potential risks to human health and the environment from contaminant exposure prior to completion of the remediation procedure.

(vi) Practicable capability of the owner or operator.

(vii) Other relevant factors.

(i) Resource value of the aquifer system, including the following:

(i) Current and future uses.

(ii) Proximity and withdrawal rate of users.

(iii) Ground water quantity and quality.

(iv) The potential damage to wildlife, crops, vegetation, and physical structures resulting from exposure to waste constituents.

(v) The hydrogeologic characteristics of the facility and surrounding area.

(vi) Ground water removal and treatment costs.

(vii) The cost and availability of alternate water supplies.

(j) Practical capability of the owner or operator.

(k) Other relevant factors.

(4) Public meeting. The owner or operator shall:

(a) Not later than thirty days after submitting the corrective measures plan to the director, place copies of the ground water quality assessment report and the corrective measures plan in the nearest public library, or other publicly accessible equivalent location, to the affected sanitary landfill facility. The owner or operator shall periodically revise and update the copies, but not later than the annual update of the operating record in accordance with rule 3745-27-09 of the Administrative Code. The

copies shall be made available to the public until a remedy is selected by the director.

(b) Not later than sixty days after submitting the corrective measures plan to the director, discuss the results and content of the ground water quality assessment report and the corrective measures plan in a public meeting with interested and affected parties. The owner or operator shall provide adequate and reasonable public notice of the meeting, and the public meeting must be held at a place and time reasonably convenient to the interested and affected parties.

(c) Solicit public comment on the proposed corrective measures plan. Any public comments received shall be placed in the operating record and submitted to the appropriate Ohio EPA district office and the approved health department.

(5) The director or the director's authorized representative may require the owner or operator to evaluate, as part of the corrective measures study, one or more specific potential remediation procedures.

(6) Interim corrective measures. If, at any time during the assessment described in paragraphs (E) and (F) of this rule, the director determines that the facility threatens human health or safety or the environment, the director may require the owner or operator to implement the following measures:

(a) Notify all persons via certified mail or any other form of mail accompanied by a receipt who own the land or reside on the land that directly overlies or lies adjacent to any part of the plume of contamination.

(b) Take any interim measures deemed necessary by the director to ensure the protection of human health and safety and the environment. Interim measures should to the extent practicable be consistent with the objectives of and contribute to the performance of any remediation procedure that may be required pursuant to paragraphs (F)(1), (F)(2), (F)(3), and (F)(7) of this rule. The following factors may be considered by the director in determining whether interim measures are necessary:

(i) The amount of time required to develop and implement a final remediation procedure.

(ii) Actual or potential exposure of nearby populations or environmental receptors to waste-derived constituents.

(iii) Actual or potential contamination of drinking water supplies or sensitive ecosystems.

(iv) Any further degradation of the ground water that may occur if remedial action is not initiated expeditiously.

(v) Weather conditions that may cause waste-derived constituents to migrate or be released.

(vi) Risks of fire, explosion, or potential for exposure to waste-derived constituents as a result of an accident or failure of a container or handling system.

(vii) Other situations that threaten human health and the environment.

(7) Ground water remediation standards. The corrective measures plan shall propose a concentration level for each waste-derived constituent which has been detected in the ground water at a statistically significant level. These shall be established as follows:

(a) The proposed concentration levels in the ground water shall be protective of human health and safety

and the environment.

(b) Unless an alternate level is deemed necessary to protect environment receptors, then the following apply:

(i) For constituents for which maximum contaminant levels have been promulgated under Chapter 3745-81 of the Administrative Code, the maximum contaminant level for that constituent.

(ii) For constituents for which maximum contaminant levels have not been promulgated, the background concentration for the constituent from wells in accordance paragraphs (C)(4) and (C)(5) of this rule.

(iii) If the owner or operator can demonstrate to the director that a waste-derived constituent is already present in the ground water at a background level, then the proposed concentration levels shall not be set below background levels unless the director determines that cleanup to levels below background levels is necessary to protect human health and the environment and such cleanup is in connection with an area-wide remedial action under other authorities.

(c) In establishing the proposed concentration levels that meet the requirements of paragraph (F)(7)(b) of this rule, the permittee shall consider the following:

(i) Multiple contaminants in the ground water.

(ii) Exposure threat to sensitive environmental receptors.

(iii) Other site-specific exposure or potential exposure to ground water.

(iv) The reliability, effectiveness, practicability, and other relevant factors of the remediation procedure.

(d) The director or the director's authorized representative may establish an alternative ground water remediation standard for constituents for which maximum contaminant levels have not been established. These ground water remediation standards shall be appropriate health based levels that satisfy the following criteria:

(i) The level is derived in a manner consistent with federal guidelines for assessing the health risks of environmental pollutants.

(ii) The level is based on scientifically valid studies conducted in accordance with standard laboratory practices.

(iii) For known or suspected carcinogens, the proposed concentration levels shall be established at concentration levels below those that represent a cumulative (due to lifetime exposure) excess upper-bound lifetime cancer risk to an individual within the 1×10^{-4} to 1×10^{-6} range.

(iv) For systematic toxicants, the proposed concentration levels shall be reduced to levels to which the human population (including sensitive subgroups) could be exposed on a daily basis without appreciable risk of deleterious effects during a lifetime. For the purposes of this rule, "systematic toxicants" include toxic chemicals that cause effects other than cancer or mutation.

(8) Determination that remediation is not necessary. The director may determine that remediation of a release of waste-derived constituents from the sanitary landfill facility is not necessary if the owner or operator

demonstrates one of the following:

(a) The ground water is additionally contaminated by substances that have originated from a source other than the sanitary landfill facility and those substances are present in concentrations such that cleanup of the release from the sanitary landfill facility would provide no significant reduction in risk to actual or potential receptors.

(b) The constituents present in ground water that:

(i) Is not currently or reasonably expected to be a source of drinking water.

(ii) Is not hydraulically connected with waters to which the waste-derived constituents are migrating or are likely to migrate in concentrations that would exceed the ground water remediation standards established under paragraph (F)(7) of this rule.

(c) Remediation of releases is technically impractical.

(d) Remediation results in unacceptable cross-media impacts.

(9) A determination by the director pursuant to paragraph (F)(8) of this rule shall not affect the director's authority to require the owner or operator to undertake source control measures or other measures that may be necessary to eliminate or minimize further releases to ground water, to prevent exposure to ground water, or to remediate ground water to concentrations that are technically practicable and significantly reduce threats to human health and the environment.

(10) Selection of corrective measure. The director shall select from the corrective measures plan, or designate according to paragraph (F)(6) of this rule, the corrective measure which best meets the criteria listed in paragraphs (F)(2), (F)(3), and (F)(7) of this rule. The owner or operator shall implement the corrective measure designated by the director in accordance with the schedule of implementation selected by the director.

[Comment: Upon the selection of a corrective measure by the director, the owner or operator shall comply with the financial assurance requirements of rule 3745-27-18 of the Administrative Code.]

(11) Determination that a corrective measure not technically practicable. The director may determine, based on information developed by the owner or operator after implementation of the remediation procedure has begun, or from other information, that compliance with the requirements for the remediation procedure selected under paragraph (F)(10) of this rule is not technically practicable. In making such a determination, the director shall consider the following:

(a) The owner's or operator's efforts to achieve compliance with the requirements.

(b) Whether other currently available or new methods or techniques could practicably achieve compliance with the requirements.

(12) Alternative measures. If the director determines that compliance with a remediation procedure requirement is not technically practicable, then the director may require that the owner or operator do the following:

(a) Implement alternate measures to control human or environmental receptor exposure to residual

contamination as necessary to protect human health and safety and the environment.

(b) Implement alternate measures for control of the sources of contamination, or for removal or decontamination of equipment, units, devices, or structures required to implement the remediation procedures, that are both of the following:

(i) Technically practicable.

(ii) Consistent with the overall objective of the remediation procedure.

(13) All solid wastes that are managed pursuant to a remediation procedure required under paragraph (F)(10) of this rule, or an interim measure required under paragraph (F)(6) of this rule, shall be managed in a manner:

(a) That is protective of human health and the environment.

(b) That complies with applicable laws and regulations.

(14) Semiannual corrective measures activities report. The owner or operator shall submit to the appropriate Ohio EPA district office and the approved health department, upon implementation of the remediation procedure chosen under paragraph (F)(10) of this rule, a report of the activities being conducted at the facility as part of implementation of the corrective measures program. Any documents or data previously submitted by the owner or operator during the semiannual period need not be submitted with the semiannual report. Previously submitted documents or data shall be referenced within the semiannual report as having been submitted. This report shall be submitted semiannually and contain the following:

(a) A narrative description of all remedial activities that have occurred since the previous report.

(b) All data generated as part of the remedial activities at the facility.

(15) Completion of corrective measures. The corrective measures selected pursuant to paragraph (F)(10) of this rule shall be considered complete when the following occur:

(a) The owner or operator complies with the ground water remediation standards established under paragraph (F)(7) of this rule at all points within the plume of contamination that lie beyond the limits of waste placement.

(b) Compliance with the ground water remediation standards established under paragraph (F)(7) of this rule has been achieved by demonstrating semiannually via ground water monitoring that the contamination has not exceeded the ground water remediation standards for a period of three years or until the end of the post-closure care period, whichever is longer, using the statistical procedures and performance standards in paragraphs (C)(6) and (C)(7) of this rule. The director may specify an alternative length of time during which the owner or operator shall demonstrate that the contamination has not exceeded the ground water protection standards taking into account the following considerations:

(i) Extent and concentration of the contamination.

(ii) Behavior characteristics of the contamination in the ground water.

(iii) Accuracy of monitoring or modeling techniques, including any seasonal, meteorological, or other environmental variabilities that may affect the accuracy.

(iv) Characteristics of the ground water.

(c) All actions required to complete the corrective measure have been satisfied.

(16) Certification corrective measures completed. Not later than fourteen days after completion of the corrective measure, the owner or operator shall certify to the director that the corrective measure has been completed in compliance with paragraph (F)(15) of this rule. The certification shall be signed by the owner or operator and a qualified ground water scientist. A copy of the certification shall be placed in the operating record. Upon approval by the director of the certification, the owner or operator shall be released from the financial assurance requirements for corrective measures under rule 3745-27-18 of the Administrative Code.

(G) Incorporation by reference. The text of the incorporated materials is not included in this rule. The materials listed in paragraph (G)(2) of this rule are hereby made a part of this rule. For materials subject to change, only the specific version specified in this rule is incorporated. Any amendment or revision to a referenced document is not incorporated until this rule has been amended to specify the new version.

(1) Availability. The statistical methods can be found in publications including but not limited to, "Statistical Analysis of Ground Water Monitoring Data at RCRA Facilities." Unified Guidance. EPA/R-09-007. U.S EPA. 2009. Office of Resource Conservation and Recovery Program Implementation and Information Division. U.S. Environmental Protection Agency. http://www.epa.gov/osw/hazard/correctiveaction/resources/guidance/ sitechar/gwstats/unified-guid.pdf. However, many of the documents are also available for inspection and copying at most public libraries and "The State Library of Ohio."

(2) Incorporated materials. Appropriate statistical methods, including the following:

(a) "1 of M resampling method."

(b) "Analysis of variance (ANOVA) model."

(c) "Control charts."

(d) "Prediction intervals."

(e) "Tolerance intervals."

Effective:	03/06/2017
Five Year Review (FYR) Dates:	08/01/2016 and 01/01/2022

CERTIFIED ELECTRONICALLY

Certification

02/22/2017

Date

Promulgated Under:	119.03
Statutory Authority:	3734.02, 3734.12
Rule Amplifies:	3734.02, 3734.12
Prior Effective Dates:	3/1/1990, 6/1/1994, 8/15/2003

Appendix I

Compound:[1]	CAS RN:[2]
1) Antimony[3]	7440-36-0
2) Arsenic[3]	7440-38-2
3) Barium[3]	7440-39-3
4) Beryllium[3]	7440-41-7
5) Cadmium[3]	7440-43-9
6) Chromium[3]	7440-47-3
7) Cobalt[3]	Total
8) Copper[3]	7440-50-8
9) Lead[3]	7439-92-1
10) Nickel[3]	7440-02-0
11) Selenium[3]	7782-49-2
12) Silver[3]	Total
13) Thallium[3]	7440-28-0
14) Vanadium[3]	7440-62-2
15) Zinc[3]	7440-66-6
16) Acetone	67-64-1
17) Acrylonitrile	107-13-1
18) Benzene	71-43-2
19) Bromocholoromethane	74-97-5
20) Bromodicholoromethane	75-27-4
21) Bromoform; Tribromomethane	75-25-2
22) Carbon disulfide	75-15-0
23) Carbon tetrachloride	56-23-5
24) Chlorobenzene	108-90-7
25) Chloroethane; Ethyl cloride	75-00-3
26) Chloroform; Trichloromethane	67-66-3
27) Dibromochloromethane; Chlorodibromomethane	124-48-1
28) 1,2-Dibromo-3-chloropropane; DBCP	96-12-8
29) 1,2 Dibromoethane;Ethylene dibromide;EDB	106-93-4
30) o-Dichlorobenzene; 1,2-Dichlorobenzene	95-50-1
31) p-Dichlorobenzene; 1,4-Dichlorobenzene	106-46-7
32) trans-1,4-Dichloro-2-butene	110-57-6
33) 1,1-Dichloroethane; Ethylidene chloride	75-34-3

34) 1,2-Dichloroethane; Ethylidene dichloride	107-06-2
35) 1,1-Dichloroethylene; 1,1-Dichloroethene; Vinylidene chloride	75-35-4
36) cis-1,2-Dichlorothylene; cis-1,2-Dichloro- ethene	156-59-2
37) trans-1,2-Dichloroethylene; trans-1,2-Dichloro- ethene	156-60-5
38) 1,2-Dichloropropane; Propylene dichloride	78-87-5
39) cis-1,3-Dichloropropene	10061-01-5
40) trans-1,3-Dichloropropene	10061-02-6
41) Ethylbenzene	100-41-4
42) 2-Hexanone; Methyl butyl ketone	591-78-6
43) Methyl bromide; Bromomethane	74-83-9
44) Methyl chloride; Chloromethane	74-87-3
45) Methylene bromide; Dibromomethane	74-95-3
46) Methylene chloride; Dichloromethane	75-09-2
47) Methyl ethyl ketone; MEK; 2-Butanone	78-93-3
48) Methyl iodide; iodomethane	74-88-4
49) 4-Methyl-2-pentanone; Methyl isobutyl ketone	108-10-1
50) Styrene	100-42-5
51) 1,1,1,2-Tetrachloroethane	630-20-6
52) 1,1,2,2-Tetrachloroethane	79-34-5
53) Tetrachloroethylene; Tetrachloroethene; Perchloroethylene	127-18-4
54) Toluene	108-88-3
55) 1,1,1-Trichloroethane; Methylchloroform	71-55-6
56) 1,1,2-Trichloroethane	79-00-5
57) Trichloroethylene; Trichloroethene	79-01-6
58) Trichloroflouromethane; CFC-11	75-69-4
59) 1,2,3-Trichloropropane	96-18-4
60) Vinyl acetate	108-05-4
61) Vinyl chloride	75-01-4
62) Xylenes	1330-20-7
63) Ammonia	7664-41-7
64) Chloride	
65) Sodium	
66) Potassium	
67) Temperature	
68) pH	

69) Specific conductance	
70) Total dissolved solids	
71) Total alkalinity	
72) Nitrate-nitrite	
73) Sulfate	14808-79-8
74) Magnesium	7439-95-4
75) Calcium	7440-70-2
76) Turbidity	
77) Iron	7439-89-6
78) Manganese	7439-96-5

Note 1: Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

Note 2: Chemical Abstract Service registry number.

Note 3: Analysis for these compounds shall be representative of the quality background ground water that has not been affected by past or present operations at the sanitary landfill facility and representative of the quality of ground water passing directly downgradient of the limits of solid waste placement.

Note 4: Xylene (total): this entry includes o-xylene (CAS RN 96-47-6), m-xylene (CAS RN 108-38-3), p-xylene (CAS RN 106-42-3), and unspecified xylenes (dimethylbenzenes) (CAS RN 1330-20-7).

Appendix II

Compound:[1]	CAS RN:[2]
1) Acenaphthene; 1,2-Dihydroacenaphthylene	83-32-9
2) Acenaphthylene	208-96-8
3) Acetone;2-Propanone	67-64-1
4) Acetonitrile; Methyl cyanide	75-05-8
5) Acetophenone; 1-Phenylethanone	98-86-2
6) 2-Acetylaminoflourene; 2-AAF; N-9H-flouren-2-yl-acetamide	53-96-3
7) Acrolein; 2-Propenal	107-02-8
8) Acrylonitrile; 2-Propenenitrile	107-13-1
9) Aldrin; l,2,3,4,10,10-hexachlora-l,4,4a,5,8,8ahexahydro(la,4a,4ab,5a,8a,8ab)-l,4:5,8- Dimethanonaphthalene	309-00-23
10) Allyl chloride; 3-Chloro-1-propene	107-05-1
11) 4-Aminobiphenyl; [l,l'-Biphenyl]-4-amine	92-67-1
12) Anthracene	120-12-7
13) Antimony[4]	7440-36-0
14) Arsenic[4]	7440-38-2
15) Barium[4]	7440-39-3
16) Benzene	71-43-2
17) Benzo[a]anthracene; Benzanthracene	56-55-3
18) Benzo[b]flouranthene; Benz[e]acephenanthylene	205-99-2
19) Benzo[k]flouranthene	207-08-9
20) Benzo[ghi]perylene	191-24-2
21) Benzo[a]pyrene	50-32-8
22) Benzyl alcohol; Benzenemethanol	100-51-6
23) Beryllium[4]	7440-41-7
24) alpha-BHC; 1,2,3,4,5,6-Hexachlorocyclohexane, (la,2a,3b,4a,5b,6b)	319-84-63
25) beta-BHC; 1,2,3,4,5,6-Hexachlorocyclohexane, (la,2b,3a,4b,5a,6b)	319-85-73
26) delta-BHC; 1,2,3,4,5,6-Hexachlorocyclohexane, (la,2a,3a,4b,5a,6b)	319-86-83
27) gamma-BHC; Lindane; 1,2,3,4,5,6-Hexachlorocyclo hexane, (la,2a,3b,4a,5a, 6b)	58-89-9
28) bis (2-Chloroethoxy)methane; 1,1'- [methylenebis(oxy)] bis[2-chloroethane]	111-91-1
29) bis(2-Chloroethyl) ether; Dichloroethyl ether; l,l'-oxybis[2-Chloroethane]	111-44-4
30) bis-(2-Chloro-l-methylethyl) Ether; 2,2'-Dichlorodi-isopropyl ether; DCIP; 2,2'-oxybis[l-Chloropropane]	108-60-1

31) bis(2-Ethylhexyl) Phthalate; 1,2-Benzenedicarboxylic acid, bis(2-Ethylhexyl) ester	117-81-7
32) Bromochloromethane; Chlorobromomethane	74-97-5
33) Bromodichloromethane; Dibromochloromethane	75-27-4
34) Bromoform; Tribromomethane	75-25-2
35) 4-Bromophenyl phenyl ether; 1-Bromo-4-phenoxy-benzene	101-55-3
36) Butyl benzyl phthalate; Benzyl butyl phthalate; 1,2-Benzenedicarboxylic acid, Butyl phenylmethyl ester	85-68-7
37) Cadmium[4]	7440-43-9
38) Carbon disulfide	75-15-0
39) Carbon tetrachloride; Tetrachloromethane	56-23-5
40) Chlordane; 1,2,4,5,6,8,8-octochloro-2,3,3a,4,7,7a-hexahydro-4,7-methano-1H-indene.	See note 6
41) p-Chloroaniline; 4-Chlorobenzenamine	106-47-8
42) Chlorobenzene	108-90-7
43) Chlorobenzilate; 4-Chloro-a-(4-Chlorophenyl)-a-Hydroxybenzeneacetic acid, Ethyl ester	510-15-6
44) p-Chloro-m-Cresol; 4-Chloro-3-Methylphenol	59-50-7
45) Chloroethane; Ethyl chloride	75-00-3
46) Chloroform; Trichloromethane	67-66-3
47) 2-Chloronaphthalene	91-58-7
48) 2-Chlorophenol	95-57-8
49) 4-Chlorophenyl phenyl ether; l-Chloro-4-phenoxy benzene	7005-72-3
50) Chloroprene; 2-Chloro-1,3-butadiene	126-99-8
51) Chromium[4]	7440-47-3
52) Chrysene	218-01-9
53) Cobalt[4]	
54) Copper[4]	7440-50-8
55) m-Cresol; 3-Methylphenol	108-39-4
56) o-Cresol; 2-Methylphenol	95-48-7
57) p-Cresol; 4-Methylphenol	106-44-5
58) Cyanide	57-12-5
59) 2,4-D; 2,4-Dichlorophenoxyacetic acid	94-75-7
60) 4,4'-DDD; 1,1'-(2,2-Dichloroethylidene)bis [4-chlorobenzene]	72-54-8
61) 4,4'-DDE; l,1'-(2,2-Dichloroethyenylidene)bis [4-chlorobenzene]	72-55-9
62) 4,4'-DDT; l,1'-(2,2,2-Trichloroethylidene)bis [4-chlorobenzene]	50-29-3

63) Diallate; bis(l-Methylethyl)-carbamothoic acid S-(2,3-Dichloro-2-propenyl) ester	2303-16-4
64) Dibenz [a, h] anthracene	53-70-3
65) Dibenzofuran	132-64-9
66) Dibromocholormethane; Chlorodibromomethane	124-48-1
67) 1,2-Dibromo-3-chloropropane; DBCP	96-12-8
68) 1,2-Dibromoethane; Ethylene dribromide; EDB	106-93-4
69) Di-n-butyl phthalate; 1,2-Benzenedicarboxylic acid dibutyl ester	84-74-2
70) o-Dichlorobenzene; 1,2-Dichlorobenzene	95-50-1
71) m-Dichlorobenzene; 1,3-Dichlorobenzene	541-73-1
72) p-Dichlorobenzene; 1,4-Dichlorobenzene	106-46-7
73) 3,3'-Dichlorobenzidine; 3,3 1 -Dichloro-[1,1 1 -bi phenyl]-4,4 1 -diamine	91-94-1
74) trans-1, 4-Dichloro-2-butene	110-57-6
75) Dichlorodifluornethane; CFC 12	75-71-8
76) 1,1-Dichloroethane; Ethylidene chloride	75-34-3
77) 1,2-Dichloroethane; Ethylene dichloride	107-06-2
78) 1,1-Dichloroethylene; 1,1-Dichloroethene; Vinylidene chloride	75-35-4
79) cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene	156-59-2
80) trans-1,2-Dichloroethylene; trans-1,2-Dichloro ethene	156-60-5
81) 2, 4-Dichlorophenol	120-83-2
82) 2, 6-Dichlorophenol	87-65-0
83) 1,2-Dichloropropane; Propylene dichloride	78-87-5
84) 1,3-Dichloropropane; Trirnethylene dichloride	142-28-9
85) 2,2-Dichloropropane; Isopropylidene chloride	594-20-7
86) 1,1-Dichloropropene; 1,1-Dichloro-l-propene	563-58-6
87) cis-1, 3-Dichloropropene;	10061-01-5
88) trans-1, 3-Dichloropropene	10061-02-6
89) Dieldrin; 3,4,5,6,9,9-Hexachloro-la,2,2a,3,6,6a, 7,7a-octahydro-2,7:3,6-dirnethanonaphthalene [2,3-b]oxirene, (laa,2b,2aa,3b,6b,6aa,7b,7aa)	60-57-1
90) Diethyl phthalate; 1,2-Benzenedicarboxylic acid, Diethyl ester	84-66-2
91) 0,0-Diethyl 0-2-Pyrazinyl phosphorothioate; Thionazin	297-97-2
92) Dirnethoate; Phosphorodithoic acid 0,0-Dimethyl-S-[2- (rnethylamino) -2-oxoethyl] ester	60-51-5
93) p-(Dimethylamino)azobenzene; N,N-Dimethyl-4-(phenylazo)benzenamine	60-11-7
94) 7, 12-Dimethylbenz [a] anthracene	57-97-6
95) 3,3'-Dirnethylbenzidene; 3,3'-Dirnethyl[l,l'biphenyl]-4,4'-diarnine	119-93-7

96) 2, 4-Dirnethylphenol; m-Xylenol	105-67-9
97) Dimethyl phthalate; 1,2-Benzenedicarboxylic acid, dimethyl ester	131-11-3
98) m-Dinitrobenzene	99-65-0
99) 4,6-Dinitro-o-cresol; 4,6-Dinitro-2-rnethylphenol; 2-Methyl 4,6-dinitrophenol	534-52-1
100) 2,4-Dinitrophenol	51-28-5
101) 2,4-Dinitrotoluene; l-Methyl-2,4-dinitrobenzene	121-14-2
102) 2,6-Dinitrotoluene; 2-Methyl-1,3-dinitrobenzene	606-20-2
103) Dinoseb; DMBP; 2-sec-Butyl-4,6-dinitrophenol; 2-(1-Methylpropyl) - 4,5-dinitrophenol	88-85-7
104) Di-n-octyl phthalate; 1,2-Benzenedicarboxylic acid, Dioctyl ester	117-84-0
105) Diphenylarnine; N-phenylbenzenamine	122-39-4
106) Disulfoton; Phosphorodithioic acid 0,0-diethyl8- [2- (ethylthio)ethyl] ester	298-04-4
107) Endosulfan I; 6,7,8,9,10,10-Hexachloro-l,5,Sa,6,9, 9a-hexahydro-6,9-methano-2,4,3-benzodioxa thiepin, 3-oxide	959-98-8
108) Endosulfan II, 6, 7, 8, 9, 10, 10-Hexachloro-1, 5, 5a, 6, 9, 9a-hexahydro-6,9-methano-2,4,3-benzodioxa thiepin, 3-oxide (3a, 5aa, 6b, 9b, 9aa)	33213-65-93
109) Endosulfan sulfate; 6,7,8,9,10,10-hexachloro-l,5,5a,6,9, 9a-hexahydro-6,9-methano-2,4,3-benzodioxa thiepin, 3-3-dioxide	1031-07-8
110) Endrin; 3,4,5,6,9,9-hexachloro-la,2,2a,3,6,6a,7,7a-octahydro-2,7:3, 6-dimethanonaphth[2,3-tahydro-b] oxirene, (laa,2b,2ab,3a,6a,6ab,7b,7aa)	72-20-8
111) Endrin aldehyde; 2,2a,3,3,4,7-hexachlorodecahydro-1, 2,4-methenocyclopenta[cd]pentalene-5-carboxaldehyde, (la,2b,2ab,4b,4ab,5b,6ab,6bb,7r*)	7421-93-4
112) Ethylbenzene	100-41-4
113) Ethyl methacrylate; 2-Methyl-2-propenoic acid, ethyl ester	97-63-2
114) Ethyl methanesulfonate; Methanesulfonic acid, ethyl ester	62-50-0
115) Famphur; Phosphorothioic acid, 0-[4-[(dimethylamino) sulfonyl]phenyl]O,O-dimethyl ester	52-85-7
116) Flouranthene	206-44-0
117) Flourene; 9H-flourene	86-73-7
118) Heptachlor; l,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-4,7-methano-1H-indene	76-44-8
119) Heptachlor epoxide; 2,3,4,5,6,7,7-Heptachloro-la,lb,5,5a,6,6a-hexahydro-2,5-methano-2h-indeno [1,2-b] oxirene, (laa,lbb,2a,5a,5ab,6b,6aa)	1024-57-3
120) Hexachlorobenzene	118-74-1

121) Hexachlorobutadiene; 1,1,2,3,4,4-Hexachloro-l,3-butadiene	87-68-3
122) Hexachlorocyclopentadiene; 1,2,3,4,5,5-Hexachloro-l, 3-cyclopentadiene	77-47-4
123) Hexachloroethane	67-72-1
124) Hexachloropropene; l,l,2,3,3,3-Hexachloro-l-propene	1888-71-7
125) 2-Hexanone; Methyl butyl ketone	591-78-6
126) Indeno(l,2,3-cd)pyrene	193-39-5
127) Isobutyl alcohol;2-Methyl-l-propanol	78-83-1
128) Isodrin; l,2,3,4,10,10-Hexachloro-l,4,4a,5,8,8a-hexahydro-l,4,5,8-dimethanonaphthalene, (la,4a,4ab,5b,8b,8ab)	465-73-6
129) Isophorone; 3, 5, 5-Trimethyl-2-cyclohexen-l-one	78-59-1
130) Isosafrole; 5-(l-Propenyl)-1,3-benzodioxole	120-58-1
131) Kepone; l,la,3,3a,4,5,5a,5b,6-decachlorocta hydro-l,3,4-methano-2H-cyclobuta[cd9]pentalen-2-one	143-50-0
132) Lead[4]	7439-92-1
133) Mercury[4]	Total
134) Methacrylonitrile; 2-Methyl-2-propenenitrile	126-98-7
135) Methapyrilene; N,N-dimethyl-N'-2-pyridinyl-N'-/2-thienylmethyl)-1,2-ethanediamine	91-80-5
136) Methoxychlor; l,l'-(2,2,2-Trichloroethylidene)bis [4-Methoxybenzene]	72-43-5
137) Methyl bromide; Bromomethane	74-83-9
138) Methyl chloride; Chloromethane	74-87-3
139) 3-Methylcholanthrene; 1,2-Dihydro-3-methylbenze [j] aceanthrylene	56-49-5
140) Methyl ethyl ketone; MEK; 2-Butanone	78-93-3
141) Methyl iodide; Iodomethane	74-88-4
142) Methyl methacrylate; 2-Methyl-2-propenoic acid, methyl ester	80-62-6
143) Methyl methanesulfonate; Methanesulfonic acid, methyl ester	66-27-3
144) 2-Methylnaphthalene	91-57-6
145) Methyl parathion; Parathion methyl; Phosphorothioic acid, 0,0-dimethyl 0-(4-nitrophenyl) ester	298-00-0
146) 4-Methyl-2-pentanone; Methyl isobutyl ketone	108-10-1
147) Methylene bromide; Dibromomethane	74-95-3
148) Methylene chloride; Dichloromethane	75-09-2
149) Naphthalene	91-20-3
150) 1,4 Naphthoquinone; 1,4-Naphthalenedione	130-15-4
151) 1-Naphthylamine; 1-Naphthalenamine	134-32-7
152) 2-Naphthylamine; 2-Naphthalenamine	91-59-8

153) Nickel[4]	7440-02-0
154) o-Nitroaniline; 2-Nitroaniline; 2-Nitrobenzenamine	88-74-4
155) m-Nitroaniline; 3-Nitroaniline; 3-Nitrobenzenamine	99-09-2
156) p-Nitroaniline; 4-Nitroaniline; 4-Nitrobenzenamine	100-01-6
157) Nitrobenzene	98-95-3
158) o-Nitrophenol; 2-Nitrophenol	88-75-5
159) p-Nitrophenol; 4-Nitrophenol	100-02-7
160) N-Ni trosodi-n-butylamine; N-Butyl-N-Ni troso-1-butanamine	924-16-3
161) N-Nitrosodiethylamine; N-Ethyl-N-nitroso ethanamine	55-18-5
162) N-Nitrosodimethylamine; N-Methyl-N-nitroso methananmine	62-75-9
163) N-Nitrosodiphenylamine; N-Nitroso-N-phenyl benzenamine	86-30-6
164) N-Nitrosodipropylamine; N-Nitroso-N-dipropylamine; di-n-propylnitrosamine; N-Nitroso-N-propyl- 1-propanamine	621-64-7
165) N-Nitrosomethylethylamine; N-Methyl-N-nitroso ethanamine	10595-95-6
166) N-Nitrosopiperidine; 1-Nitrosopiperidine	100-75-4
167) N-Nitrosopyrrolidine; l-N1trosopyrrolidine	930-55-2
168) 5-Nitro-o-toluidine; 2-Methyl-5-nitrobenzenamine	99-55-8
169) Parathion; Phosphorothioic acid, 0,0-diethyl 0-(4-nitrophenyl) ester	56-38-2
170) Pentachlorobenzene	608-93-5
171) Pentachloronitrobenzene	82-68-8
172) Pentachlorophenol	87-86-5
173) Phenacetin; N-(4-Ethoxyphenyl) acetamide	62-44-2
174) Phenanthrene	85-01-8
175) Phenol	108-95-2
176) p-Phenylenediamine; 1,4-Benzenediamine	106-50-3
177) Phorate; Phosphorodithioic acid, 0,0-Diethyl S-[(ethylthio) methyl) ester	298-02-2
178) Polychlorinated biphenyls; PCBs; aroclors; 1,1'-Biphenyl, chloro derivatives	See note 7
179) Pronamide; 3,5-Dichloro-N-(1,l-dimethyl-2-propynyl)benzamide	23950-58-5
180) Propionitrile; Ethyl cyanide	107-12-0
181) Pyrene	129-00-0
182) Safrole; 5- (2-Propenyl) -1,3-benzodioxole	94-59-7
183) Selenium[4]	7782-49-2
184) Silver[4]	Total
185) Silvex; 2,4,5-TP; 2-(2,4,5-Trichlorophenoxy)propanoic acid	93-72-1
186) Styrene; Ethenylbenzene	100-42-5

187) Sulfide	18496-25-8
188) 2,4,5-T; 2,4,5-Trichlorophenoxyacetic acid	93-76-5
189) 1, 2, 4, 5-Tetrachlorobenzene; 2,3,7,8-TCDD; 2,3,7,8-Tetrachlorodibenzo- p-dioxin 1746-01-6 Dibenzo[b,e][1,4]dioxin, 2,3,7,8-tetrachloro-	95-94-3
190) 1,1,1,2-Tetrachloroethane	630-20-6
191) 1,1,2,2-Tetrachloroethane	79-34-5
192) Tetrachloroethylene; Tetrachloroethene; Perchloroethylene	127-18-4
193) 2,3,4,6-Tetrachlorophenol	58-90-2
194) Thallium[4]	7440-28-0
195) Tin[4]	Total
196) Toluene; Methylbenzene	108-88-3
197) o-Toluidine; 2-Methylbenzenamine	95-53-4
198) Toxanhene	See note 8
199) 1,2,4-Trichlorobenzene	120-82-1
200) 1,1,1-Trichloroethane; Methylchloroform	71-55-6
201) 1, 1, 2-Trichloroethane	79-00-5
202) Trichloroethylene; Trichloroethene	79-01-6
203) Trichlorofluoromethane; CFC-11	75-69-4
204) 2,4,5-Trichlorophenol	95-95-4
205) 2,4,6-Trichlorophenol	88-06-2
206) 1, 2, 3-Trichloropropane	96-18-4
207) o,o,o-Triethyl phosphorothioate; Phosphorothioic acid, o,o,o-triethyl ester	126-68-1
208) sym-Trinitrobenzene; 1,3,5-Trinitrobenzene	99-35-4
209) Vanadium[4]	7440-62-2
210) Vinyl acetate; Acetic acid, ethenyl ester	108-05-4
211) Vinyl chloride; Chloroethene	75-01-4
212) Xylene (total); Dimethylbenzene	See note 9
213) Zinc[4]	7440-66-6

Note 1: Common names are those widely used in government regulation, scientific publications, and commerce; synonyms exist for many chemicals.

Note 2: Chemical Abstract Service registry number. Where "total" is entered, all species in ground water that contain this element are included.

Note 3: When numbers and letters appear in this form at the end of a chemical name, i.E. (la,4a,4aB,5a,8a,8aB), the following applies: "a" =small case "a"; "a" (italic) =alpha; "b" = small case "b"; and "B" (italic) = beta.

Note 4: Analysis for these compounds shall be representative of the quality background ground water that has not been affected by past or present operations at the sanitary landfill facility and representative of the quality of ground water passing directly downgradient of the limits of solid waste placement.

Note 5: CAS No. 108-60-1. This substance is often called bis(2-Chloroisopropyl) ether, the name Chemical Abstracts Service applies to its commercial isomer, propane, 2, 2" -oxybis [2-Chloro- CAS RN 39638-32-9) .

Note 6: Chlordane: This entry includes alpha-chlordane (CAS RN 5103-71-9), beta-Chlordane (CAS RN 5103-74-2), gamma-Chlordane (CAS RN 5566-34-7), and constituents of Chlordane (CAS RN 57-74-9 and CAS RN 12789-03-06).

Note 7: Polychlorinated biphenols (CAS RN 1336-36-3); This category contains congener chemicals including constituents of Aroclor 1016 (CAS RN 12674-11-2), Aroclor 1221 (CAS RN 11104-28-2), Aroclor 1232 (CAS RN 11141-16-5), Aroclor 1242 (CAS RN 53469-21-9), Aroclor 1248 (CAS RN 12672-29-6), Aroclor 1254 (CAS RN 11097-69-1), and Aroclor 1260 (CAS RN 11096-82-5).

Note 8: Toxaphene: This entry includes congener chemicals contained in technical toxaphene (CAS RN 8001-35-2), i.e., chlorinated camphene.

Note 9: Xylene (total) : This entry includes a-xylene (CAS RN 96-47-6), m-xylene (CAS RN 108-38-3), p-xylene (CAS RN 106-42-3), and unspecified xylenes (dimethylbenzenes) (CAS RN 1330-20-7).

3745-27-11 Final closure of a sanitary landfill facility.

(A) Applicability.

(1) The owner or operator of a sanitary landfill facility shall keep the "final closure/post-closure plan" in the operating record of the sanitary landfill facility in accordance with rule 3745-27-09 of the Administrative Code.

(2) The owner or operator of a sanitary landfill facility that ceased waste acceptance prior to June 1, 1994, as determined by the notification pursuant to paragraph (E) of this rule, shall comply with one of the following:

(a) If the director has approved a final closure/post-closure plan for a sanitary landfill facility, the owner or operator shall continue to comply with the previously approved final closure/post-closure plan and this rule.

(b) If the director has not approved a final closure/post-closure plan for the sanitary landfill facility, the owner or operator shall complete closure activities in accordance with the following until a final closure/post-closure plan is approved:

(i) Paragraphs (F) to (J) of this rule.

(ii) Rule 3745-27-10 of the Administrative Code.

(iii) Rule 3745-27-15 and 3745-27-16 of the Administrative Code.

(iv) Rule 3745-27-12 of the Administrative Code.

(c) If the final closure certification report for the sanitary landfill facility has not been submitted in accordance with paragraph (J) of this rule, the owner or operator shall comply with paragraphs (F) to (L) of this rule, and rules 3745-27-10 and 3745-27-16 of the Administrative Code.

(d) The requirements specified in this paragraph do not affect other schedules or requirements specified in administrative or judicial orders or consent agreements. Ohio EPA may authorize other schedules or requirements. This rule shall not be construed to affect the liability of the owner, operator, permittee, or licensee for past violations of this rule as effective June 1, 1994, March 1, 1990, or of rule 3745-27-10 of the Administrative Code, as effective July 29, 1976.

(B) Final closure/post-closure plan. The owner or operator shall prepare a final closure/post-closure plan that at a minimumcontains all the items specified in paragraphs (B)(1) to (B)(10) of this rule. All engineering information included in the final closure/post-closure plan shall be signed and sealed by a professional engineer registered in Ohio. The final closure/post-closure plan shall contain all of the items specified in paragraphs (B)(1) to (B)(10) of this rule for all contiguous units of a sanitary landfill facility and shall separately address the items specified in paragraphs (B)(1) to (B)(10) of this rule for each noncontiguous unit of a sanitary landfill facility. The owner or operator may prepare separate final closure/post-closure plans for each noncontiguous unit of a sanitary landfill facility.

(1) The name and location of the facility and the unit included in the final closure/post-closure plan.

(2) Any variances or exemptions from the requirements of this rule or rule 3745-27-14 of the Administrative Code or any alternative schedule for completing final closure activities.

[Comment: If a variance, exemption, or alternative schedule is identified, the request must be submitted

to the director and must receive prior approval; otherwise, the rule requirements are applicable and enforceable.]

(3) The name, address, and telephone number of the person or office to contact regarding the unit of the sanitary landfill facility during the final closure and post-closure care periods.

(4) Schedule of installation of any explosive gas control systems.

(5) The following information to be presented in the same manner as outlined in rule 3745-27-06 of the Administrative Code:

(a) Plan drawings of the horizontal limits and top elevations of waste and the cap system, the location of surface water control structures including permanent ditches to control run-on and runoff, and the location of sedimentation ponds including the inlet and outlet.

(b) A grid system with northings and eastings established not more than five hundred feet apart.

(c) Detail drawings of the composite cap system including but not limited to the key trench, any penetrations, cap drainage structures, and surface water drainage structures.

(d) Detail drawings of sedimentation pond and discharge structures and surface water run-on and runoff control structures.

(e) Static and seismic stability analysis.

(f) For a sanitary landfill facility subject to paragraph (A)(2)(a) or (A)(2)(b) of this rule, the ground water detection monitoring plan.

(g) For a sanitary landfill facility subject to paragraph (A)(2)(a) or (A)(2)(b) of this rule, the financial assurance information in accordance with rules 3745-27-15 and 3745-27-16 of the Administrative Code.

(6) Description of availability and suitability of cap material.

(7) Quality assurance/quality control plan for cap system construction.

(8) For a sanitary landfill facility subject to paragraph (A)(2)(a) or (A)(2)(b) of this rule, the explosive gas monitoring plan.

(9) Description of anticipated measures to control erosion.

(10) Contingency plans for leachate, fire, and differential settling.

(C) Mandatory closure. The owner or operator shall begin final closure activities in accordance with the final closure/post-closure plan and paragraph (F) of this rule not later than seven days after any of the occurrences specified in this paragraph. Approval of the final closure/post-closure plan does not affect the owner's or operator's obligations to begin and complete final closure activities in accordance with paragraphs (G) and (H) of this rule.

(1) It is mandatory to begin closure activities for a sanitary landfill facility upon the occurrence of any of the following:

(a) A solid waste disposal license issued for the sanitary landfill facility has expired, and a renewal license has not been applied for in the manner prescribed in rules adopted under Chapter 3734. of

the Revised Code.

(b) A solid waste disposal license issued for the sanitary landfill facility has expired, and another license has been applied for and denied as a final action.

(c) A solid waste disposal license issued for the sanitary landfill facility has been revoked as a final action.

(d) The owner or operator ceases to receive solid waste for disposal at the sanitary landfill facility for a period of greater than one year and all final elevations of the limits of waste placement have not been reached.

(2) It is mandatory to begin closure activities for a noncontiguous unit of a sanitary landfill facility upon the occurrence of any of the following:

(a) The owner or operator declares that the noncontiguous unit will cease acceptance of solid waste for disposal by a date certain.

(b) All approved limits of solid waste placement for the noncontiguous unit have been reached, as specified in the plan approval, operational report, approved permit to install, or other authorization of the director.

(3) It is mandatory to begin closure activities for contiguous units of a sanitary landfill facility upon the occurrence of any of the following:

(a) The owner or operator declares that all of the contiguous units will cease acceptance of solid waste by a date certain.

(b) All approved limits of solid waste placement for all of the contiguous units have been reached, as specified in the plan approval, operational report, approved permit to install, or other authorization of the director.

(4) It is mandatory to begin closure activities for an existing unit of a sanitary landfill facility if the owner or operator cannot demonstrate, pursuant to paragraph (B) of rule 3745-27-20 of the Administrative Code, that the existing unit complies with the applicable location restrictions pursuant to rule 3745-27-20 of the Administrative Code.

(D) Notification of anticipated date to cease acceptance of solid waste.

(1) The owner or operator shall provide notice by certified mail or any other form of mail accompanied by a receipt of the anticipated date on which the sanitary landfill facility will cease to accept solid waste if final closure is or will be triggered for all units in accordance with paragraph (C)(1)(a), (C)(2), or (C)(3) of this rule. Such notice shall be provided not later than ninety days prior to the anticipated date on which solid waste will cease to be accepted.

(2) The owner or operator shall send a copy of the notice specified in paragraph (D)(1) of this rule to the following:

(a) The board of health having jurisdiction.

(b) The single or joint county solid waste planning district in which the facility is located.

(c) The director.

(3) Concurrently with the submission of the notice in accordance with paragraph (D)(1) of this rule, the owner or operator shall post a sign as to be easily visible from all access roads leading onto the sanitary landfill facility stating, in letters not less than three inches high, that the sanitary landfill facility will no longer accept solid waste with the anticipated date. This paragraph does not apply to a sanitary landfill facility owned by a generator exclusively disposing of solid wastes generated at premises owned by the generator.

(4) Not later than thirty days prior to the anticipated date on which the facility will cease to accept solid waste, notice shall be provided by certified mail or any other form of mail accompanied by a receipt to the director of any changes to the information that identifies the facility's final closure contact person.

(E) The owner or operator shall send notification by certified mail or any other form of mail accompanied by a receipt to the director and to the board of health having jurisdiction, as to the actual date that the unit of the sanitary landfill facility ceased to accept solid waste. The notification shall be sent not later than seven days after the date specified in the notification.

(F) The owner or operator shall begin final closure activities for all contiguous units or for each noncontiguous unit of the sanitary landfill facility not later than seven days after any of the occurrences in paragraph (C) of this rule. At a minimum, final closure activities for all units of the sanitary landfill facility shall include the items specified in paragraphs (G) and (H) of this rule.

(G) Composite cap system. The owner or operator shall construct a composite cap system in accordance with the following:

(1) The cap design approved in the permit or in a subsequently approved alteration, unless paragraph (G)(2), (G)(3), or (G)(4) of this rule applies.

(2) If the sanitary landfill facility does not meet the criteria specified in paragraph (G)(1) of this rule, the cap design in the closure/post-closure plan. If the cap design in the closure/post-closure plan is revised after the effective date of this rule, the cap design shall comply with rule 3745-27-08 of the Administrative Code.

(3) If a unit of the sanitary landfill facility has areas that have been capped, graded, and seeded in accordance with paragraphs (C)(1) to (C)(4) of rule 3745-27-10 of the Administrative Code, as effective July 29, 1976, or in accordance with paragraph (G)(2), (G)(3), or (G)(4) of this rule, effective June 1, 1994, those areas need not have cap system in accordance with rule 3745-27-08 of the Administrative Code.

(4) If closure of the sanitary landfill facility is in accordance with paragraph (M) of the June 1, 1994 effective version of rule 3745-27-11 of the Administrative Code, the owner or operator shall construct a cap in accordance with rule 3745-27-08 of the Administrative Code.

(H) Other closure activities.

(1) The owner or operator shall continue to comply with rule 3745-27-19 of the Administrative Code and all monitoring and reporting activities required during the operating life of the unit of the sanitary landfill facility until the closure certification is submitted and the post-closure care period begins.

(2) The owner or operator shall install surface water control structures including permanent ditches to control run-on and runoff and sedimentation ponds as shown in the final closure/post-closure plan. The owner or operator shall grade all land surfaces as necessary to prevent ponding of water where solid waste has been placed, and institute measures to control erosion.

[Comment: The minimum slope standard in rule 3745-27-08 of the Administrative Code is a design standard. For closure certification, it is not necessary to regrade the site if there is not a ponding problem, even if the slope no longer meets the design in the closure/post-closure plan.]

(3) The owner or operator shall design and install a ground water monitoring system in accordance with rule 3745-27-10 of the Administrative Code if a system is not already in place.

(4) The owner or operator shall bait for rodents and treat for other vectors as necessary.

(5) The owner or operator shall record on the plat and deed to the sanitary landfill facility property, or on some other instrument that is normally examined during title search that will in perpetuity notify any potential purchaser of the property, a notation describing the impacted acreage, exact location, depth, volume, and nature of solid waste deposited in the unit of the sanitary landfill facility.

(6) Upon ceasing acceptance of waste in all units of a sanitary landfill facility, the owner or operator shall post signs, in such a manner as to be easily visible from all access roads leading onto the sanitary landfill facility, stating in letters not less than three inches high that the sanitary landfill facility no longer accepts solid waste. Signs shall be maintained in legible condition for two years after final closure activities have been completed. This paragraph does not apply to sanitary landfill facilities owned and permitted by a generator of solid wastes if the sanitary landfill facility exclusively disposes of solid wastes generated at the premises owned by the generator.

(7) Upon ceasing acceptance of waste in all units of the sanitary landfill facility, the owner or operator shall block, by locked gates, fencing, or other sturdy obstacles, all entrances and access roads to the sanitary landfill facility to prevent unauthorized access during the final closure and post-closure period.

(I) Final closure activities shall be completed not later than one hundred and eighty days after any of the occurrences in paragraph (C) of this rule, unless an alternative schedule has been authorized by Ohio EPA.

(J) Final closure certification. Not later than ninety days after the completion of final closure activities for all contiguous units and for each noncontiguous unit, the owner or operator shall submit a written certification report to the director and to the board of health having jurisdiction. The final closure certification shall include verification that the unit of the sanitary landfill facility has been closed in accordance with this rule and the final closure/post-closure plan. At a minimum, the final closure certification shall include the following:

(1) A list of the construction certification reports for construction of the composite cap system with the date of submittal and a topographic map of the entire sanitary landfill facility showing the areas certified by each report. The map shall also show the following:

(a) The horizontal limits of waste placement.

(b) The surface water control structures including permanent ditches to control run-on and run-off.

(c) If present, the sedimentation pond including the inlet or outlet, the outlet of any permanent ground water control structures, and the explosive gas control system.

(2) A demonstration that the ground water monitoring system meets the requirements of rule 3745-27-10 of the Administrative Code.

(3) A copy of the plat and deed, or other instrument which is normally examined during a title search, showing the notation pursuant to paragraph (H)(5) of this rule and bearing the mark of recordation of the office of the county recorder for the county in which the property is located.

(4) A demonstration that the sign pursuant to paragraph (H)(6) of this rule has been posted and that all entrances and access roads have been blocked in accordance with paragraph (H)(7) of this rule.

(K) The health commissioner and the director, or their authorized representatives, upon proper identification, may enter any unit of the sanitary landfill facility at any time during the final closure period for the purpose of determining compliance with this rule.

(L) It is the responsibility of the owner or operator to complete final closure of the unit of a sanitary landfill facility in a manner that minimizes the need for further maintenance and minimizes post-closure formation and release of leachate and explosive gases to air, soil, ground water, or surface water to the extent necessary to protect human health and the environment.

3745-27-11

Effective:	1/1/2021
Five Year Review (FYR) Dates:	7/6/2020 and 01/01/2026

CERTIFIED ELECTRONICALLY

Certification

11/02/2020

Date

Promulgated Under:	119.03
Statutory Authority:	3734.02, 3734.12
Rule Amplifies:	3734.02, 3734.12
Prior Effective Dates:	03/01/1990, 06/01/1994, 08/15/2003

3745-27-12 Explosive gas migration monitoring for a sanitary landfill facility.

(A) Applicability. This rule applies to each responsible party for any of the following facilities:

(1) A licensed solid waste landfill facility that accepted waste on or after June 1, 1994.

(2) A previously licensed closed solid waste landfill facility that meets the following:

(a) Ceased solid waste acceptance after May 31, 1988.

(b) Is so situated that a residence or other occupied structure is located within one thousand feet of the horizontal limits of solid waste placement.

(3) A previously licensed closed solid waste landfill facility that meets the following:

(a) Ceased solid waste acceptance between July 1, 1970 and May 31, 1988.

(b) Has received notification from Ohio EPA that this rule applies, based upon site specific conditions including but not limited to explosive gas generation, migration, and the threat to human health, safety, or the environment.

(4) A solid waste landfill facility for which a new or revised EGMP is required pursuant to an order of the director.

(B) Definitions. If a term used in this rule is defined in rule 3745-27-01 of the Administrative Code, the definition in rule 3745-27-01 of the Administrative Code is applicable to this rule unless the term is defined in this rule. As used in this rule:

(1) "Alternative monitoring device" or "AMD" means any type of device other than an explosive gas monitoring probe where the presence and concentration of landfill gas can be measured with a direct reading instrument.

(2) "EGMP" means an explosive gas monitoring plan.

(3) "Facility boundary" means one of the following:

(a) The solid waste landfill facility boundary as depicted in the effective permit.

(b) The property line of all the parcels that contain the limits of solid waste placement.

(4) "LEL" has the same meaning as lower explosive limit.

(5) "Solid waste landfill facility," means any site, location, tract of land, or installation used for the disposal of solid waste.

(C) Exclusions. This rule does not apply to the following facilities:

(1) A solid waste landfill facility that exclusively disposes or has disposed of solid wastes generated on one or more premises owned by the person who owns the solid waste landfill facility.

(2) A solid waste landfill facility owned or operated by a person other than the generator of the wastes that exclusively disposes or has disposed of nonputrescible solid wastes generated by the generator at one or more of the premises owned by the generator.

(D) Notwithstanding the exclusions contained in paragraph (C) of this rule, the director may issue an order

directing a responsible party to prepare and submit a new or revised EGMP for a solid waste landfill facility in accordance with this rule if the director determines that the potential exists for the formation and subsurface migration of explosive gases in such quantities and under such conditions as to threaten human health or safety or the environment.

(E) Exceedances of methane by volume at or above 1.25 per cent in occupied structures or five per cent methane by volume at the facility boundary shall constitute a threat to human health, safety, and the environment.

(F) Explosive gas monitoring plan.

(1) Submittal and implementation of an EGMP. Unless otherwise excluded by paragraph (C) of this rule, the responsible party shall prepare, submit, and implement an EGMP as follows:

(a) For a solid waste landfill facility operating on the effective date of this rule, submit an EGMP that complies with this rule in accordance with the following schedule:

(i) Concurrent with a request to alter an effective EGMP.

(ii) At the same time as the ten-year update schedule specified in rule 3745-27-19 of the Administrative Code.

(b) For a solid waste landfill facility that has ceased operations prior to the effective date of this rule, not later than two hundred seventy days after the effective date of this rule or not later than two hundred seventy days after receipt of a notification in accordance with paragraph (A)(3)(b) of this rule, submit an EGMP to Ohio EPA as follows:

(i) For a solid waste landfill facility without an approved EGMP, a new EGMP that complies with this rule.

(ii) For a solid waste landfill facility with an approved EGMP, a revised EGMP that complies with this rule.

(c) If a new occupied structure is built within one thousand feet of the horizontal limits of solid waste placement, submit an EGMP that complies with this rule to Ohio EPA in accordance with the following schedule:

(i) For a solid waste landfill facility without an approved EGMP, a new EGMP not later than two hundred seventy days after discovery of the occupied structure.

(ii) For a solid waste landfill facility with an approved EGMP, a revised EGMP not later than one hundred eighty days after discovery of the occupied structure.

(d) The most recent approved EGMP shall remain in effect until a revised EGMP is approved by the director in accordance with this rule.

(e) The responsible party shall implement the EGMP upon approval by the director.

(f) The responsible party shall comply with an approved EGMP until the director authorizes the responsible party to cease explosive gas monitoring in accordance with paragraph (O) of this rule.

(2) The responsible party shall establish a stand-alone EGMP on forms prescribed by the director and submit the EGMP to Ohio EPA that includes at a minimum, the following:

(a) A description of the explosive gas monitoring network that demonstrates the network conforms to

paragraph (H) of this rule and is capable of measuring explosive gas to ensure concentrations of methane do not exceed the following:

(i) 1.25 per cent by volume or twenty-five per cent of the LEL in occupied structures.

(ii) Five per cent by volume or one hundred per cent of the LEL at the facility boundary.

(b) Detailed topographical maps with a scale of one inch equals no greater than two hundred feet showing the following:

(i) The property boundary, facility boundary, and the horizontal limits of solid waste placement of the solid waste landfill facility.

(ii) A zone around the solid waste landfill facility representing the area that is two hundred feet from the horizontal limits of solid waste placement.

(iii) A zone around the solid waste landfill facility representing the area that is one thousand feet from the horizontal limits of solid waste placement.

(iv) All property owners and political subdivisions located within two hundred feet of the horizontal limits of solid waste placement.

(v) All property boundaries and parcel numbers located within one thousand feet of the horizontal limits of solid waste placement.

(vi) All on-site enclosed structures where one or more human beings may be present and all off-site enclosed structures where one or more human beings may be present located within one thousand feet of the horizontal limits of solid waste placement. The EGMP shall identify those enclosed structures that are occupied structures.

(vii) All man-made explosive gas migration pathways within one thousand feet of the horizontal limits of solid waste placement including but not limited to roads, railroads, underground utilities, mines, storm sewers, water lines, electric cables, and pipelines.

(viii) All other potential sources of explosive gas within one thousand feet of the horizontal limits of solid waste placement including but not limited to oil and gas wells, landfills, and wetlands.

(ix) All man-made features that may act as a barrier to explosive gas migration or allow the venting of explosive gas.

(c) The following geological information:

(i) The ground water surface elevation in the proximity of the solid waste placement and fluctuations in ground water levels.

(ii) A discussion of the topography of the site and surrounding area.

(iii) A discussion of any natural or man-made site characteristics that may act as impervious boundaries to gas migration or allow natural venting of gas.

(iv) If the subsurface stratification is known, a hydrogeological cross section of the solid waste landfill facility property that equals the depth of solid waste and shows the potential natural pathways.

(v) A discussion characterizing all known potential explosive gas migration pathways and their associated explosive gas hazard.

(vi) A discussion and identification of any other sources of explosive gas within one thousand feet of the horizontal limits of solid waste placement that may potentially cause subsurface migration of explosive gas.

(d) The following solid waste landfill facility information:

(i) The lowest elevation of solid waste placement.

(ii) The approximate acreage of solid waste placement.

(iii) A discussion of the types of waste that have been disposed or will be disposed at the solid waste landfill facility.

(iv) At a minimum and as applicable and available, a discussion of the following historical information pertaining to the solid waste landfill facility:

(a) The date of the initial solid waste license and any subsequent licenses.

(b) The date of initial operation.

(c) The date of cessation of waste acceptance, the date closure activities were completed, and the date when the closure certification report was submitted to the director.

(d) All previous or current authorizations regarding explosive gas management.

(e) The names of all prior owners for all of the real property within the facility boundary.

(e) The following gas investigation information:

(i) A description and an evaluation of the effectiveness of the following:

(a) Any existing gas monitoring system.

(b) Any existing gas extraction system.

(c) Any existing gas venting system.

(ii) A discussion of historical records detailing any previous explosive gas investigations including but not limited to probe sampling results and any other type of gas sampling results.

(iii) A discussion of any of the following that could be attributed to current explosive gas presence:

(a) Dead vegetation.

(b) Odors.

(c) Snow melt.

(f) For every probe and AMD, the following:

(i) The schematic of the design that conforms to paragraph (G) of this rule. The schematic may be a generalized construction of the probe or AMD.

(ii) The location and the geo-coordinate on a plan drawing.

(iii) The total depth.

(iv) The total length of the screen interval, if applicable.

(v) The identification designation.

(vi) Methods of construction.

(vii) Materials used in construction.

(viii) Installation procedures and quality assurance measures.

(ix) Security measures capable of protecting the probe or AMD from vandalism, impact damage, and weather, as applicable.

(g) The following appendices to the EGMP:

(i) Appendix A. Copies of letters sent to the entities listed in paragraph (J)(2) of this rule, which specify the location of the solid waste landfill facility and the proximity of the occupied structure.

(ii) Appendix B. Documentation of installation of explosive gas alarms in occupied structures within two hundred feet of solid waste placement. At a minimum, this documentation shall include the following:

(a) Communications from the responsible party to the property owner of the occupied structure seeking consent to install an explosive gas alarm in the structure.

(b) Confirmatory communication from the responsible party to each owner of an occupied structure that declines consent to install an explosive gas alarm in the structure.

(c) A map depicting all occupied structures within two hundred feet of solid waste placement that have an explosive gas alarm installed.

(iii) Appendix C. Hydrogeologic boring logs, if available.

(iv) Appendix D. Certification reports in accordance with paragraph (G)(2) of this rule.

(v) Appendix E. The most recent deed for each parcel of the solid waste landfill facility property.

(vi) Other appendices as necessary.

(3) If Ohio EPA determines that additional information is necessary to determine whether the criteria set forth in paragraph (F)(2) of this rule are satisfied, Ohio EPA may require that the responsible party supply such information as a precondition to further consideration of the EGMP.

(4) The director shall not approve an EGMP unless the following are met:

(a) The EGMP is complete in accordance with paragraph (F)(2) of this rule.

(b) The explosive gas monitoring system is designed and is capable of being constructed and operated in accordance with this rule and with any terms and conditions of the approved EGMP.

(c) Any existing probes or AMDs have been installed and explosive gas is being monitored in accordance with paragraphs (I), (J), and (L) of this rule.

(5) Alterations to the EGMP. The responsible party may submit to Ohio EPA a written request to revise the approved EGMP and may implement the revision only upon obtaining Ohio EPA's concurrence with the request.

(G) Probe and AMD design. The responsible party shall utilize probes and AMDs as follows:

(1) Probe design, construction, and implementation.

(a) The explosive gas monitoring network shall be designed and constructed utilizing probes that conform to the following:

(i) Accurately detect the existing levels of explosive gas.

(ii) Are screened to the entire depth of solid waste placement, unless a barrier exists that is of sufficient impermeability to prevent the migration of explosive gas beyond the barrier. The responsible party may submit a demonstration that existing probes are adequate and meet the design specifications of this paragraph.

(iii) Are designed to prevent contamination or dilution of explosive gas samples.

(iv) Are designed to prevent contamination of groundwater.

(v) Are designed to obtain liquid levels, gas pressure, and methane concentration within the probe.

(b) Ohio EPA may authorize the use of AMDs in lieu of probes if the responsible party demonstrates, based on specific site geology, location, depth of waste, or other factors, that the AMDs will be protective of human health, safety, and the environment. If AMDs are used, the AMDs shall conform to the following:

(i) Accurately detect the existing levels of explosive gas.

(ii) Be capable of detecting gas migration in the explosive gas pathway.

(iii) Be designed to prevent contamination of groundwater.

(c) If at any time Ohio EPA determines the construction, design, or operation of any probe or AMD is not capable of meeting the requirements of this paragraph, then the probe or AMD shall be re-developed by the responsible party to meet these requirements.

(d) The director may require the installation of additional probes, AMDs, alarms, or the abandonment of probes as necessary to monitor explosive gas pathways or to eliminate the potential contamination of ground water.

(2) Certification of probes or AMDs. Upon installation of new or replacement probes or AMDs, the responsible party shall submit a certification report to the director that at a minimum includes the following:

(a) A drawing showing the locations of all probes and AMDs with their associated identification designations.

(b) Geologic logs, if applicable.

(c) Piping materials, depth and, if applicable, the length of the screened intervals.

(d) The initial gas monitoring results obtained from the probe or AMD.

(3) New occupied structures or explosive gas pathways. The responsible party shall alter the EGMP and install new probes or AMDs in all new explosive gas pathways and construct the new probes or AMDs in accordance with this rule. A new probe or AMD shall be installed and sampled in the following manner:

(a) Not later than one hundred eighty days after discovery of a new occupied structure within one thousand feet of the horizontal limits of solid waste placement.

(b) Upon discovery of an existing explosive gas pathway or the creation of any explosive gas pathway within one thousand feet of the horizontal limits of solid waste placement.

(c) Upon discovery of any topographic or subsurface construction changes occurring in the vicinity of the solid waste landfill facility that create the potential for explosive gas migration towards any occupied structure within one thousand feet of solid waste placement.

(4) Replacement or abandonment of probes or AMDs. The responsible party shall replace or abandon a probe or AMD as follows:

(a) For a damaged or inaccessible probe or AMD, replace in accordance with the approved EGMP and this rule prior to the next compliance monitoring event or in accordance with an alternative timeframe authorized in writing by Ohio EPA.

(b) As near as possible to the same location as the damaged probe or AMD to monitor the same pathway.

(c) Certify the installation of the new or replacement probe or AMD in accordance with paragraph (G)(2) of this rule.

(d) If applicable, abandon the probes and AMDs in accordance with rule 3745-9-10 of the Administrative Code.

(H) Explosive gas network design. The responsible party shall ensure that the explosive gas monitoring network is capable of detecting explosive gas using probes or alarms as follows unless the responsible party has received authorization from Ohio EPA to use AMDs in lieu of probes:

(1) For an occupied structure located within the horizontal limits of solid waste placement, using explosive gas alarms. Upon consent of the owner of the occupied structure, the responsible party shall install explosive gas alarms in the occupied structure in accordance with the manufacturer's instructions. At a minimum, the explosive gas alarm shall be capable of detecting gas concentrations of 1.25 per cent methane by volume or twenty-five per cent of the LEL.

(2) For occupied structures located within two hundred feet of the horizontal limits of solid waste placement, the following:

(a) Upon consent of the owner of the occupied structure, install an explosive gas alarm in the occupied structure. At a minimum, the explosive gas alarm shall be capable of detecting gas concentrations of 1.25 per cent methane by volume or twenty-five per cent of the LEL.

(b) Install probes between the horizontal limits of solid waste placement and the occupied structure in such location and number that explosive gas migration through the unconsolidated stratigraphic unit,

fractured bedrock pathway, or man-made pathway towards the occupied structure will be detected. If the occupied structure is outside the facility boundary, the probe shall be located as close to the facility boundary as possible. If a man-made barrier to gas migration is present, the probe shall be located between the barrier and the occupied structure.

(3) For occupied structures located within one thousand feet of the horizontal limits of solid waste placement, install probes between the horizontal limits of solid waste placement and the occupied structure in such locations and numbers that explosive gas migration through the unconsolidated stratigraphic unit, fractured bedrock pathway, or man-made pathway towards the structure will be detected. If the occupied structure is outside the facility boundary, the probe shall be located as close to the facility boundary as possible. If a man-made barrier to gas migration is present, the probe shall be located between the barrier and the occupied structure.

(4) For a licensed solid waste landfill facility that accepted waste on or after June 1, 1994, by installing probes that monitor explosive gas towards the facility boundary and are located between the horizontal limits of solid waste placement and the facility boundary.

(I) Compliance monitoring.

(1) Sampling frequency. The responsible party shall conduct explosive gas compliance monitoring in accordance with the following schedule:

(a) For licensed solid waste landfill facility in operation on or after June 1, 1994:

(i) Monthly prior to closure if any portion of the solid waste landfill facility is not lined with a flexible membrane liner.

(ii) Quarterly prior to closure if the solid waste landfill facility is lined with a flexible membrane liner.

(iii) Quarterly during the post closure care period.

(b) For a solid waste landfill facility that ceased acceptance of waste prior to June 1, 1994, but after July 1, 1970, semiannually.

(c) For a solid waste landfill facility regulated under Chapter 3745-29 or Chapter 3745-30 of the Administrative Code, one of the following:

(i) Monthly prior to closure if any portion of the solid waste landfill facility is not lined with a flexible membrane liner.

(ii) Quarterly prior to closure if the solid waste landfill facility is lined with a flexible membrane liner.

(iii) Quarterly during the post closure care period.

(d) At an alternate frequency specified by Ohio EPA in accordance with paragraph (J)(5) of this rule.

(2) Operating record. For a licensed solid waste landfill facility in operation on or after June 1, 1994, the responsible party shall submit all EGMP certification reports, monitoring results, contingency reports, and revisions to the approved EGMP into the operating record in accordance with rule 3745-27-09 of the Administrative Code.

(J) Contingency monitoring.

(1) The responsible party shall implement contingency monitoring upon discovery of either of the following gas concentrations:

(a) Five per cent methane by volume or one hundred per cent of the LEL at any probe or AMD.

(b) 1.25 per cent methane by volume or twenty-five per cent of the LEL in any occupied structure.

(2) Notifications. Upon discovery of gas concentrations exceeding a limit specified paragraph (J)(1) of this rule, the responsible party shall immediately notify the following:

(a) The owner of the occupied structure.

(b) The appropriate Ohio EPA district office and the local board of health.

(c) If the exceedance is in an occupied structure, the local fire department.

(3) Upon implementation of contingency monitoring, the responsible party shall do the following:

(a) Increase the monitoring frequency for each probe and AMD that exceed the LEL to a minimum of weekly unless otherwise directed by Ohio EPA.

(b) Submit the contingency monitoring results to Ohio EPA and the local board of health not later than seven days following each contingency monitoring event, unless otherwise directed by Ohio EPA.

(4) Cessation. The responsible party may cease contingency monitoring when a minimum of four sequential weekly monitoring events no longer exceed the limits specified in paragraph (J)(1) of this rule.

(5) Return to compliance monitoring. Upon cessation of contingency monitoring in accordance with this rule, the responsible party shall return to compliance monitoring at a frequency specified by Ohio EPA. The first compliance monitoring event shall occur not later than two months after cessation of contingency monitoring.

(K) Remediation procedures. If directed by a notification from Ohio EPA pursuant to paragraph (A)(3)(b) of this rule or if the responsible party is unable to mitigate or abate explosive gas exceedances that are at the facility boundary and within one thousand feet of an occupied structure after four weeks of contingency monitoring, the responsible party shall prepare, submit, and implement a remediation plan as follows:

(1) Remediation plan. The responsible party shall prepare and submit a remediation plan to Ohio EPA not later than thirty days after receipt of the notice pursuant to paragraph (A)(3)(b) of this rule or not later than thirty days after the initial four weeks of contingency monitoring, whichever is applicable. The responsible party shall ensure that the remediation plan contains an implementation schedule and describes how the formation and migration of explosive gas from the facility will be minimized or abated such that exceedances of the LEL at the facility boundary cease.

(2) The responsible party shall implement the remediation plan not later than thirty days after receipt of concurrence from Ohio EPA or in accordance with an alternative schedule authorized in writing by Ohio EPA.

(3) If the responsible party has implemented the remediation plan and not abated or minimized the formation and migration of explosive gas from the facility such that exceedances of the LEL at the facility boundary continue to occur, then the responsible party shall do the following:

(a) Submit a revised remediation plan not later than thirty days following notification from Ohio EPA that the remedy was not successful.

(b) Implement the revised remediation plan not later than fourteen days after receipt of written approval from Ohio EPA.

(4) Ohio EPA may condition a remediation plan or a revised remediation plan to address any deficiencies. The responsible party shall implement the conditioned remediation plan not later than thirty days after receipt of written approval or in accordance with an alternative schedule authorized in writing by Ohio EPA.

(L) Sampling procedures, calibration, and maintenance.

(1) Sampling procedures. When conducting monitoring, the responsible party shall sample all monitoring locations as follows:

(a) Probes and AMDs shall not be vented prior to sampling gas pressure or methane concentration.

(b) The gas monitoring equipment shall have a detection limit below one per cent methane by volume.

(c) For all probes and AMDs, the following information shall be recorded:

(i) Ambient barometric pressure.

(ii) Ambient air temperature.

(iii) Observed weather conditions.

(d) For probes, information shall be recorded in the following order:

(i) Gas pressure in the probe.

(ii) Peak combustible gas concentration in per cent methane by volume or in per cent LEL.

(iii) Depth to water from the top of casing.

(e) For AMDs, peak combustible gas concentration shall be recorded in per cent methane by volume or in per cent LEL.

(2) Calibration procedures. The responsible party shall maintain documentation of the calibration of explosive gas monitoring equipment and ensure that the gas monitoring equipment used to perform monitoring is properly calibrated per manufacturer's requirements not later than twenty-four hours prior to performing any sampling. The responsible party shall ensure the following:

(a) Any gases used to calibrate the gas monitoring equipment are not expired.

(b) The calibration gas concentration is between one per cent and five per cent methane by volume, or as specified by the manufacturer.

(3) Maintenance of explosive gas alarms. The responsible party shall maintain explosive gas alarms installed in occupied structures as follows:

(a) Calibrate and assess the performance of the explosive gas alarm at a minimum annually and submit documentation of the condition of each alarm and calibration results to Ohio EPA not later than thirty days after the calibration event.

(b) Replace each defective or non-functioning alarm not later than twenty-four hours after discovery that the alarm is not operating per the manufacturer's specifications.

(c) Immediately notify the individuals identified in paragraph (J)(2) of this rule if an alarm indicates the presence of explosive gas at 1.25 per cent methane by volume or twenty-five per cent of the LEL within the occupied structure.

(M) Reporting.

(1) Not later than fifteen days after the date of sampling, the responsible party shall submit the explosive gas sampling results to Ohio EPA and the local board of health on forms prescribed by the director. At a minimum, the results shall include the following:

(a) The identification designation for each probe and AMD sampled.

(b) The ambient barometric pressure, ambient air temperature, and observed weather conditions on the date of sampling.

(c) The concentration of methane in each probe and AMD sampled.

(d) Any additional information specified on the form or requested by Ohio EPA.

(2) An alternative form may be utilized by the responsible party if the alternative form contains all of the information specified in paragraph (M)(1) of this rule.

(N) Upon the director's finding that explosive gas formation and migration threaten human health, safety or the environment, the director may order a responsible party to perform such measures to abate or minimize the formation or migration of explosive gas.

(O) Cessation of explosive gas monitoring. The responsible party of a solid waste landfill facility that has completed post closure care may submit to the director a written request to cease explosive gas monitoring. The request shall demonstrate that gas formation and migration from the solid waste landfill facility is no longer a threat to human health, safety or the environment.

3745-27-12

Replaces:	3745-27-12
Effective:	7/1/2021
Five Year Review (FYR) Dates:	07/01/2026

CERTIFIED ELECTRONICALLY

Certification

02/24/2021

Date

Promulgated Under:	119.03
Statutory Authority:	3734.02, 3734.041, 3734.12
Rule Amplifies:	3734.02, 3734.041, 3734.12
Prior Effective Dates:	11/17/1988 (Emer.), 03/09/1989 (Emer.), 06/12/1989, 06/01/1994, 08/15/2003

3745-27-14 Post-closure care of sanitary landfill facilities.

(A) Following completion of final closure activities in accordance with rule 3745-27-11 of the Administrative Code or following closure activities in accordance with paragraph (C) of rule 3745-27-10 of the Administrative Code, as effective July 29, 1976 and completed on or after the date three years prior March 1, 1990, the owner, operator, or permittee shall conduct post-closure care activities at the sanitary landfill facility for a minimum of thirty years in accordance with the final closure/post-closure care plan and this rule. The post-closure care period begins when the certification pursuant to paragraph (J) of rule 3745-27-11 of the Administrative Code has been submitted for all units of a sanitary landfill facility. Post-closure care activities for a sanitary landfill facility shall include but are not limited to the following:

(1) Continuing operation and maintenance of the surface water management system, any explosive gas extraction or control system, any explosive gas monitoring system, and the ground water monitoring system.

(2) Maintaining the integrity and effectiveness of the access road and blocking of entrances, the cap system, and stability of the landfill, including making repairs to the cap system as necessary to correct the effects of slope failure, settling, subsidence, ponding, erosion, leachate outbreaks, or other events, and preventing run-on and runoff from eroding or otherwise damaging the access road or cap system. If vegetative cover is established on less than seventy-five per cent of the cap system, the owner or operator shall reseed and if appropriate, amend the soil.

(3) Maintaining signs stating that the sanitary landfill facility no longer accepts solid waste for two years after final closure activities have been completed.

(4) Continuing operation and maintenance of the leachate management system including the following:

(a) Replacing or repairing the lift station pump within twenty-four hours of discontinued operation.

(b) If leachate generation suddenly decreases, visually or physically inspecting the collection pipe network of the leachate management system to ensure that clogging has not occurred.

(c) For a sump serving a leachate collection system across the bottom of the landfill, maintaining leachate no more than one foot above the top elevation of the sump. Leachate may be stored within the limits of waste placement if authorized in writing by the director.

(5) Repairing any leachate outbreaks detected at the sanitary landfill facility through completion of the following:

(a) Containing and properly managing the leachate at the sanitary landfill facility.

(b) If necessary, collecting, treating, and disposing of the leachate including following the contingency plan for leachate storage and disposal prepared pursuant to rule 3745-27-19 of the Administrative Code.

(c) Taking action to minimize, control, or eliminate the conditions that contribute to the production of leachate.

(6) Quarterly inspection of the sanitary landfill facility during each year of the post-closure care period and submittal of a written summary to the appropriate Ohio EPA district office and approved board of health not later than fifteen days after the inspection date detailing the results of the inspection and a schedule of any actions to be taken to maintain compliance with paragraphs (A)(1) to (A)(5) of this rule. At a minimum, the quarterly inspection shall assess the condition and operation of the following:

(a) The surface water management system.

(b) The gas management system.

(c) The access road and access controls.

(d) For the initial three years of post-closure care, signage.

(e) The cap system and vegetative cover including any occurrences of settling, subsidence or other effects of slope failure, ponding, erosion, or leachate outbreaks.

(f) The leachate management system including leachate depth in the sump.

(7) Fulfilling the monitoring and reporting requirements in accordance with rule 3745-27-10 of the Administrative Code for ground water, rule 3745-27-12 of the Administrative Code for explosive gas, Chapter 3745-76 of the Administrative Code for landfill emissions, and any monitoring and reporting requirements in accordance with any orders or authorizing documents. The frequency of ground water detection monitoring sampling and analysis may be changed in accordance with paragraph (D)(6) of rule 3745-27-10 of the Administrative Code.

(8) If a substantial threat of water pollution exists from leachate entering surface waters, monitoring of the surface water as required by the director or health commissioner.

(9) Submitting a report to the appropriate Ohio EPA district office and approved board of health and placing a copy into the operating record not later than the first day of April of each year. At a minimum, the report shall contain the following:

(a) If a leachate collection system exists, a summary of the quantity of leachate collected for treatment and disposal on a monthly basis during the year, the location of leachate treatment or disposal, and copies of all testing results performed for disposal.

(b) If a leachate collection system exists, results of analytical testing of an annual grab sample of leachate for the parameters specified in appendix I to rule 3745-27-10 of the Administrative Code. The grab sample shall be obtained from the leachate management system.

(c) A summary of the conditions and operation of the leachate management system, ground water monitoring system, explosive gas monitoring system, and any other monitoring and control system installed at the sanitary landfill facility.

(d) The most recent updated post-closure care cost estimate adjusted for inflation and for any change in the post-closure cost estimate pursuant to rule 3745-27-16 of the Administrative Code.

(e) The occurrence of any of the following:

(i) Construction of occupied structures within one thousand feet of the limits of waste placement.

(ii) Installation of water wells within one thousand feet of the limits of waste placement.

(iii) Surface mining within three hundred feet of the limits of waste placement.

(f) A statement that, to the best of the knowledge of the owner, operator, or permittee, the information contained in the annual report is true and accurate.

(10) Maintaining records and reports generated by paragraphs (A)(6), (A)(7), and (A)(9) of this rule that shall

be kept for the duration of the post-closure care period at a location where the records and reports are available for inspection by Ohio EPA, or the approved board of health or their authorized representative, during normal working hours. If the owner or operator has established an operating record, the records and reports shall be kept in the operating record in accordance with rule 3745-27-09 of the Administrative Code.

(B) Upon completion of the post-closure care period, the owner, operator, or permittee shall submit to the director written certification that the sanitary landfill facility has completed post-closure care activities in accordance with this rule and the final closure/post-closure plan. The certification shall be accompanied by documentation that demonstrates the post-closure care activities have been completed and be signed and sealed by a professional engineer registered in Ohio. The documentation shall include the following:

(1) A summary of changes to leachate quality and quantity.

(2) Rate of leachate generation and quantity of leachate in the sanitary landfill facility, with an explanation of how these figures were derived.

(3) A summary of any on-going ground water assessment or corrective measures.

(4) A summary of explosive gas migration and generation by the sanitary landfill facility.

(5) An assessment of the integrity and stability of the cap system if post-closure care activities cease.

(C) The owner or operator may request to discontinue or revise any of the activities contained in paragraph (A) of this rule at any time during the post-closure care period by submitting a performance-based and risk-based demonstration that is based on such factors as the inspection or monitoring results or reports pursuant to this rule and whether human health or safety of the environment is or will be protected. If the director determines that discontinuance or revision of the post-closure care requirements is unlikely to adversely impact human health, safety, and the environment, the director may grant the request.

[Comment: A release by the director from any post-closure care obligations in accordance with this rule does not relieve the owner or operator from any applicable obligations under Chapter 3704., 3734., or 6111. of the Revised Code or any other state or federal rules and laws.]

(D) The post-closure care period may be extended by order of the director or a court of competent jurisdiction if conditions at a sanitary landfill facility are impacting human health, safety, or the environment or if ground water assessment or ground water corrective measures are required to be conducted at the sanitary landfill facility in accordance with rules adopted under Chapter 3734. of the Revised Code.

(E) Upon written request by the owner or operator of a noncontiguous unit of a sanitary landfill facility, the director may authorize discontinuance of the ground water detection monitoring requirements of paragraph (A)(6) of this rule at the noncontiguous unit prior to the end of the post-closure care period for the sanitary landfill facility, provided the owner or operator meets the following:

(1) Has completed a minimum of thirty years of ground water detection monitoring in accordance with rule 3745-27-10 of the Administrative Code from the date the owner or operator submitted the written certification report pursuant to paragraph (J) of rule 3745-27-11 of the Administrative Code.

(2) Is not implementing a ground water quality assessment program or a corrective measures program pursuant to rule 3745-27-10 of the Administrative Code.

(3) Is monitoring the noncontiguous unit separately for the purpose of ground water detection monitoring.

(F) The health commissioner and the director, or their authorized representatives, upon proper identification, may enter any closed sanitary landfill facility or closed noncontiguous unit at any time during the post-closure care period for the purpose of determining compliance with this rule.

3745-27-14

Effective:	1/1/2021
Five Year Review (FYR) Dates:	7/6/2020 and 01/01/2026

CERTIFIED ELECTRONICALLY

Certification

11/02/2020

Date

Promulgated Under:	119.03
Statutory Authority:	3734.02, 3734.12
Rule Amplifies:	3734.02, 3734.12
Prior Effective Dates:	03/01/1990, 06/01/1994, 08/15/2003

3745-27-15 Financial assurance for solid waste landfill closure.

For the purposes of this rule, "owner or operator" means the owner or operator of a solid waste landfill.

(A) Applicability.

(1) The owner or operator shall submit financial assurance information as part of a permit to install application for a new solid waste landfill, for a modification that increases the closure cost estimate of an existing solid waste landfill, and as part of a permit to install application submitted in response to division (A)(3) or (A)(4) of section 3734.05 of the Revised Code.

(2) For solid waste landfills that were not issued a permit to install or that are subject to rule 3745-30-09 of the Administrative Code, as applicable, the owner or operator shall submit to Ohio EPA a closure financial assurance instrument in accordance with this rule.

(B) Implementation.

(1) The owner or operator shall execute and fund the closure financial assurance instrument submitted as a part of a permit to install application prior to receipt of solid waste at a new solid waste landfill, prior to acceptance of waste pursuant to a modification that increases the closure cost estimate of an existing solid waste landfill, or prior to issuance of a permit to install for which an application was submitted in response to division (A)(3) or (A)(4) of section 3734.05 of the Revised Code.

(2) The owner or operator of a sanitary landfill facility that did not receive a permit to install or is subject to rule 3745-30-09 of the Administrative Code, as applicable, shall execute and fund the closure financial assurance instrument not later than sixty days after approval of the closure/post-closure care plan.

(C) Closure financial assurance instrument.

(1) The closure financial assurance instrument for a solid waste landfill shall contain an itemized written estimate, in current dollars, of the cost of closure. The closure cost estimate shall be based on a third party conducting the closure activities and the following:

(a) The cost of closure at the point in the operating life of the solid waste landfill when the extent and manner of the solid waste landfill's operation would make the closure the most expensive.

(b) To address multi-year closure activities at the solid waste landfill, the cost of the following for each fifty-acre increment:

(i) Mobilization.

(ii) Demobilization.

(iii) Operation and maintenance activities including but not limited to monitoring, maintenance of engineered components, and leachate disposal.

(2) Ohio EPA may review, approve, or require revisions to the closure cost estimate or to the closure financial assurance instrument.

(D) Review of closure financial assurance instruments. The owner or operator shall review the closure cost

estimate as follows and submit the most recently adjusted closure cost estimate and financial assurance instrument to the director by certified mail or any other form of mail accompanied by a receipt:

(1) Annually review and analyze the closure cost estimate.

(2) If a change occurs that increases the cost of closure, revise the closure cost estimate to account for the increase.

(3) Annually adjust the closure cost estimate for inflation using the preceding February inflation factor derived from the annual implicit price deflator for gross domestic product as published by the U.S. department of commerce. The inflation factor is the result of dividing the latest published annual deflator by the deflator for the previous year. The inflation adjustment shall be calculated as follows:

(a) For the first adjustment, by multiplying the closure cost estimate by the inflation factor. The result is the adjusted closure cost estimate.

(b) For subsequent adjustments, by multiplying the most recently adjusted closure cost estimate by the most recent inflation factor.

(E) The owner or operator shall select a closure financial assurance mechanism from the list of mechanisms specified in paragraphs (F) to (L) of this rule, except as otherwise specified by this rule, provided the owner or operator satisfies the criteria for use of that mechanism.

(F) Closure trust fund.

(1) The owner or operator may satisfy the requirements of this rule by establishing a closure trust fund that conforms to this paragraph and by sending an originally signed duplicate of the trust agreement to the director within the time period outlined in paragraph (B) of this rule and by submitting a copy into the operating record of the facility in accordance with rule 3745-27-09 of the Administrative Code. The trustee shall be an entity that 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 3745-27-17 of the Administrative Code on forms prescribed by the director and be accompanied by a formal certification of acknowledgment. "Schedule A" of the trust agreement shall be updated not later than sixty days after a change in the amount of the current closure cost estimate provided for in the agreement.

(3) A closure trust fund shall be established to secure an amount at least equal to the current closure cost estimate, except as provided in paragraph (M) of this rule. Except for payments made in accordance with paragraph (F)(4) of this rule, payments to the trust fund shall be made annually by the owner or operator during the pay-in period. The pay-in period shall be the anticipated life of the facility as calculated using the authorized maximum daily waste receipt and the approved volume of the solid waste facility as shown in the authorizing document. A receipt from the trustee for each payment shall be submitted by the owner or operator to the director and the first payment into the closure trust fund shall be at least equal to the current closure cost estimate divided by the number of years in the pay-in period, except as provided in paragraph (M) of this rule and shall be made in accordance with this rule. Subsequent payments to the closure trust fund shall be made as follows:

(a) Not later than thirty days after each anniversary date of the first payment. The amount of each subsequent payment shall be determined by performing the following calculation:

Next payment = (CE - CV) / Y

Where CE is the current closure cost estimate, CV is the current value of the trust fund, and Y is the number of years remaining in the pay-in period.

(b) If the owner or operator establishes a trust fund, as specified in this rule, and the value of the trust fund is less than any revised current closure cost estimate made during the pay-in period, the amount of the current closure cost estimate still to be paid into the trust fund shall be paid in by the owner or operator over the pay-in period. The owner or operator shall continue to make payments not later than thirty days after each anniversary date of the first payment pursuant to paragraph (F)(3)(a) of this rule. The amount of each payment shall be determined by performing the following calculation:

Next payment = (CE - CV) / Y

Where CE is the current closure cost estimate, CV is the current value of the trust fund, and Y is the number of years remaining in the pay-in period.

(c) The owner or operator may make the first installment of the pay-in period by providing alternative financial insurance using one of the mechanisms specified in paragraph (G), (I), or (J) of this rule in an amount at least equal to the first installment. On the anniversary date of the first installment, the owner or operator shall pay into the trust an amount at least equal to the first and second installments required by this paragraph or select an alternative financial assurance mechanism.

(4) The owner or operator may accelerate payments into the trust fund or deposit the full amount of the current closure cost estimate at the time the fund is established. The owner or operator shall maintain the value of the fund at no less than the value of the fund if annual payments were made as specified in paragraph (F)(3) of this rule.

(5) If the owner or operator establishes a closure trust fund after having begun funding closure under any mechanism specified in this rule, the closure trust fund shall be established by depositing the total value of all prior mechanisms into the newly established trust fund. The subsequent annual payments shall be made as specified in paragraph (F)(3) of this rule.

(6) After the pay-in period of a trust fund has ended and the current closure cost estimate changes, the owner or operator shall compare the revised estimate to 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 revised estimate, the owner or operator shall, not later than sixty days after the change in the cost estimate, either deposit a sufficient amount into the trust fund so that the value after payment at least equals the amount of the current closure cost estimate, or obtain alternative financial assurance as specified in this rule to compensate for the difference.

(7) The director shall instruct the trustee to release to the owner or operator such funds as the director specifies in writing after receiving one of the following requests from the owner or operator:

(a) Release of the amount in excess of the current closure cost estimate, if the value of the trust fund is greater than the total amount of the current closure cost estimate.

(b) Release of the amount in the trust fund that exceeds the amount required as a result of such

substitution, if the owner or operator substitutes any of the alternative financial assurance mechanisms specified in this rule for all or part of the trust fund.

(8) Reimbursement for closure. After beginning closure the owner or operator, or any other person authorized by the owner, operator, or director to perform closure, may request reimbursement for closure expenditures by submitting itemized bills to the director. After receiving itemized bills for closure activities, the director shall determine whether the closure expenditures are in accordance with the closure/post-closure plan, permit requirements, or applicable rules, or are otherwise justified, and if so, shall instruct the trustee to make reimbursement in such amounts as the director specifies in writing. If the director determines that the cost of closure will be greater than the value of the trust fund, the director may withhold reimbursement of such amounts as the director deems prudent until the director determines, in accordance with paragraph (O) of this rule, that the owner or operator is no longer required to maintain financial assurance for closure of the solid waste landfill.

(9) The director may agree to termination of the trust when one of the following occurs:

(a) The owner or operator substitutes alternative financial assurance for closure as specified in this rule.

(b) The director notifies the owner or operator, in accordance with paragraph (O) of this rule, that the owner or operator is no longer required by this rule to maintain financial assurance for closure of the solid waste landfill.

(G) Surety bond guaranteeing payment into a closure trust fund.

(1) The owner or operator may satisfy the requirements of this rule by obtaining a surety bond that conforms to the requirements of this paragraph and by delivering the originally signed bond to the director by certified mail or any other form of mail accompanied by a receipt within the time period outlined in paragraph (B) of this rule and by submitting a copy of the bond into the operating record in accordance with rule 3745-27-09 of the Administrative Code. The surety company issuing the bond shall at a minimum be among those listed as acceptable sureties on federal bonds in the most recent listing of approved sureties as published by 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 3745-27-17 of the Administrative Code on forms prescribed by the director.

(3) The owner or operator who uses a surety bond to satisfy this rule shall also establish a standby trust fund not later than when the bond is obtained. Under the terms of the surety 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 paragraph (F) of this rule, except as follows:

(a) An originally signed duplicate of the trust agreement shall be delivered to the director with the surety bond and a copy placed in the operating record in accordance with rule 3745-27-09 of the Administrative Code.

(b) Until the standby trust fund is funded, pursuant to the requirements of this rule, the following are not required:

(i) Payments into the trust fund as specified in paragraph (F) of this rule.

(ii) Revisions of "Schedule A" of the trust agreement to show the current closure cost estimate.

(iii) Annual valuations as required by the trust agreement.

(iv) Notices of nonpayment as required by the trust agreement.

(4) The bond shall guarantee that the surety will become liable on the bond obligation unless the owner or operator does one of the following:

(a) Funds the standby trust fund in an amount equal to the penal sum of the bond before the beginning of closure of the solid waste landfill.

(b) Funds the standby trust fund in an amount equal to the penal sum not later than fifteen days after final closure is triggered in accordance with the closure/post-closure care plan, permit or registration requirements, or applicable rules.

(c) Not later than ninety days after both the owner or operator and the director receive notice of cancellation of the bond from the surety, provides alternative financial assurance as specified in this rule and obtains the director's written approval of the alternative financial assurance provided.

(5) Under the terms of the bond, the surety shall 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 closure cost estimate except as provided in paragraph (M) of this rule.

(7) Whenever the current closure cost estimate increases to an amount greater than the penal sum of the bond, the owner or operator shall, not later than sixty days after the increase in the estimate, either cause the penal sum of the bond to be increased to an amount at least equal to the current closure cost estimate and submit evidence of such increase to the director and into the operating record in accordance with rule 3745-27-09 of the Administrative Code, or obtain alternative financial assurance, as specified in this rule, to compensate for the increase. Whenever the current closure cost estimate decreases, the penal sum may be reduced to the amount of the current closure cost estimate following written approval by the director. Notice of an increase or a proposed decrease in the penal sum shall be sent to the director not later than sixty days after the change.

(8) Under the terms of the bond, the bond shall remain in force unless the surety sends written notice of cancellation by certified mail or any other form of mail accompanied by a receipt to the owner or operator and to the director. Cancellation cannot occur, however, during the one hundred twenty day period beginning on the first day that both the owner or operator and the director have received the notice of cancellation, as evidenced by the return receipts.

(9) The owner or operator may cancel the bond if the director has given prior written consent. The director shall provide such written consent to the surety bond company when one of the following occurs:

(a) The owner or operator substitutes alternative financial assurance for closure of the solid waste landfill as specified in this rule.

(b) The director notifies the owner or operator, in accordance with paragraph (O) of this rule, that the owner or operator is no longer required to maintain financial assurance for closure of the solid waste landfill.

(H) Surety bond guaranteeing performance of closure.

(1) The owner or operator may satisfy the requirements of this rule by obtaining a surety bond which conforms to the requirements of this paragraph and by delivering the originally signed bond to the director within the time period outlined in paragraph (B) of this rule and by submitting a copy of the surety bond into the operating record of the facility in accordance with rule 3745-27-09 of the Administrative Code. The surety company issuing the bond shall at a minimum be among those listed as acceptable sureties on federal bonds in the most recent listing of approved sureties as published by the U.S. department of the treasury.

(2) The wording of the surety bond shall be identical to the wording specified in paragraph (C) of rule 3745-27-17 of the Administrative Code on forms prescribed by the director.

(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 surety 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 paragraph (F) of this rule except as follows:

(a) An originally signed duplicate of the trust agreement shall be delivered to the director with the surety bond, and a copy shall be placed in the operating record in accordance with rule 3745-27-09 of the Administrative Code.

(b) Unless the standby trust fund is funded pursuant to this rule, the following are not required:

(i) Payments into the trust fund as specified in paragraph (F) of this rule.

(ii) Revisions of "Schedule A" of the trust agreement to show the current closure cost estimate.

(iii) Annual valuations as required by the trust agreement.

(iv) Notices of nonpayment as required by the trust agreement.

(4) The bond shall guarantee that the surety will become liable on the bond obligation unless the owner or operator does one of the following:

(a) Performs closure in accordance with the closure/post-closure plan, permit or registration requirements, or applicable rules.

(b) Not later than ninety days after both the owner or operator and the director receive notice of cancellation of the bond from the surety, provides alternative financial assurance as specified in this rule and obtains the director's written approval of the alternative financial assurance provided.

(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. Following a determination by the director that the owner or operator of the solid waste landfill has failed to perform closure activities in accordance with

the closure/post-closure care plan, permit requirements, or applicable rules, the surety shall perform closure in accordance with the closure/post-closure care plan, permit requirements, and applicable rules, or will deposit the amount of the penal sum into the standby trust fund.

(6) The penal sum of the bond shall be in an amount at least equal to the current closure cost estimate.

(7) Whenever the current closure cost estimate increases to an amount greater than the penal sum of the bond, the owner or operator shall, not later than sixty days after the increase in the estimate, either cause the penal sum of the bond to be increased to an amount at least equal to the current closure cost estimate and submit evidence of such increase to the director and into the operating record in accordance with rule 3745-27-09 of the Administrative Code, or obtain alternative financial assurance, as specified in this rule, to compensate for the increase. Whenever the current closure cost estimate decreases, the penal sum may be reduced to the amount of the current closure cost estimate following written approval by the director. Notice of an increase or a proposed decrease in the penal sum shall be sent to the director by certified mail or any other form of mail accompanied by a receipt not later than sixty days after the change.

(8) Under the terms of the bond, the bond shall remain in force unless the surety sends written notice of cancellation by certified mail or any other form of mail accompanied by a receipt to the owner or operator and to the director. Cancellation cannot occur, however, during the one hundred twenty day period beginning on the first day that both the owner or operator and the director have received the notice of cancellation as evidenced by the return receipts.

(9) The owner or operator may cancel the bond if the director has given prior written consent. The director shall provide such written consent to the surety bond company when one of the following occurs:

(a) The owner or operator substitutes alternative financial assurance for closure of the solid waste landfill as specified in this rule.

(b) The director notifies the owner or operator, in accordance with paragraph (O) of this rule, that the owner or operator is no longer required by this rule to maintain financial assurance for closure of the solid waste landfill.

(10) The surety shall not be liable for deficiencies in the completion of closure of the solid waste landfill by the owner or operator after the owner or operator has been notified by the director, in accordance with this rule, that the owner or operator is no longer required to maintain financial assurance for closure of the solid waste landfill.

(I) Closure letter of credit.

(1) The owner or operator may satisfy the requirements of this rule by obtaining an irrevocable standby letter of credit ("letter of credit") which conforms to the requirements of this paragraph and by having the originally signed letter of credit delivered to the director by certified mail or any other form of mail accompanied by a receipt within the time period outlined in paragraph (B) of this rule and by submitting a copy of the letter of credit into the operating record of the facility in accordance with rule 3745-27-09 of the Administrative Code. 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 (D) of rule 3745-27-17 of the Administrative Code on forms prescribed by the director.

(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 shall be deposited promptly and directly by the issuing institution into the standby trust fund in accordance with instructions from the director. The standby trust fund shall meet the requirements of the trust fund specified in paragraph (F) of this rule, except as follows:

(a) An originally signed duplicate of the trust agreement shall be delivered to the director with the letter of credit, and a copy placed in the operating record in accordance with rule 3745-27-09 of the Administrative Code.

(b) Unless the standby trust fund is funded pursuant to this rule, the following are not required:

(i) Payments into the trust fund as specified in paragraph (F) of this rule.

(ii) Updating of "Schedule A" of the trust agreement to show current closure cost estimate.

(iii) Annual valuations as required by the trust agreement.

(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 following information:

(a) The names and addresses of the solid waste landfill, owner, and operator.

(b) The amount of funds assured for closure of the solid waste landfill 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 prior to the current expiration date, the issuing institution notifies both the owner and operator and the director by certified mail or any other form of mail accompanied by a receipt of a decision not to extend the expiration date. Under the terms of the letter of credit, the one hundred twenty day period shall begin on the day 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 closure cost estimate, except as provided in paragraph (M) of this rule.

(7) Whenever the current closure cost estimate increases to an amount greater than the amount of the credit, the owner or operator shall, not later than sixty days after the increase, either cause the amount of the credit to be increased to an amount at least equal to the current closure cost estimate and submit evidence of such increase to the director and into the operating record in accordance with rule 3745-27-09 of the Administrative Code, or obtain alternative financial assurance, as specified in this rule, to compensate for the increase. Whenever the current closure cost estimate decreases, the letter of credit may be reduced to the amount of the current closure cost estimate following written approval by

the director. Notice of an increase or a proposed decrease in the amount of the letter of credit shall be sent to the director by certified mail or any other form of mail accompanied by a receipt not later than sixty days after the change.

(8) Under the terms of the letter of credit, the director may draw on the letter of credit following a determination that the owner or operator has failed to do the following:

(a) Perform closure in accordance with the closure/post-closure care plan, permit requirements, or applicable rules.

(b) Provide alternative financial assurance as specified in this rule and obtain written approval of such alternative financial assurance from the director not later than ninety days after the owner and operator and the director have received notice from the issuing institution that it will not extend the letter of credit beyond the current expiration date. The director shall draw on the letter of credit and may delay the drawing if the issuing institution grants an extension of the term of the credit. During the thirty days of any such extension the director shall draw on the letter of credit if the owner or operator has failed to provide alternative financial assurance as specified in this rule and has failed to obtain written approval of such alternative financial assurance from the director.

(9) The director shall return the original letter of credit to the issuing institution for termination when either of the following occur:

(a) The owner or operator substitutes alternative financial assurance for closure of the solid waste landfill as specified in this rule.

(b) The director notifies the owner or operator, in accordance with paragraph (O) of this rule, that the owner or operator is no longer required to maintain financial assurance for closure of the solid waste landfill.

(J) Closure insurance.

(1) The owner or operator may satisfy the requirements of this rule by obtaining closure insurance which conforms to this paragraph and by submitting an originally signed certificate of such insurance to the director by certified mail or any other form of mail accompanied by a receipt within the time period outlined in paragraph (B) of this rule, and submitting a copy of the certificate of insurance into the operating record in accordance with rule 3745-27-09 of the Administrative Code. 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 (E) of rule 3745-27-17 of the Administrative Code on forms prescribed by the director.

(3) The closure insurance policy shall be issued for a face amount at least equal to the current closure cost estimate, except as provided in paragraph (M) of this rule. 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 closure insurance policy shall guarantee that funds will be available to close the solid waste landfill whenever closure is mandated. The policy shall also guarantee that once closure begins, 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) Reimbursement for closure. The owner or operator, or any other person authorized by the owner, operator, or director to perform closure, may request reimbursement for closure expenditures by submitting itemized bills to the director. After receiving itemized bills for closure activities, the director shall determine whether the closure expenditures are in accordance with the closure/post-closure care plan, permit requirements, or applicable rules, or are otherwise justified, and if so, shall instruct the insurer to make reimbursement in such amounts as the director specifies in writing. If the director has reason to believe that the cost of closure will be 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 (O) of this rule, that the owner or operator is no longer required to maintain financial assurance for closure of the solid waste landfill.

(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 (J)(10) of this rule. Failure to pay the premium, without substitution of alternative financial assurance as specified in this rule, constitutes a violation of these rules, warranting such remedy as the director deems necessary. Such violation shall 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. At a minimum, the automatic renewal of the policy shall 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 or any other form of mail accompanied by a receipt to the owner or operator and to the director. Cancellation, termination, or failure to renew may not occur however, during the one hundred twenty day period beginning on the first day that both the owner or operator and the director have received the notice of cancellation, as evidenced by the return receipts and the policy will remain in full force and effect, if the following occurs on or before the date of expiration:

(a) Any activities required by the closure/post-closure care plan, permit requirements, or applicable rules have not been completed.

(b) Closure of the facility is ordered by the director or a court of competent jurisdiction.

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

(d) The premium due is paid.

(9) Whenever the current closure cost estimate increases to an amount greater than the face amount of the

policy, the owner or operator shall, not later than sixty days after the increase, either cause the face amount to be increased to an amount at least equal to the current closure cost estimate and submit evidence of such increase to the director, and into the operating record in accordance with rule 3745-27-09 of the Administrative Code, or obtain alternative financial assurance as specified in this rule to compensate for the increase. Whenever the current closure cost estimate decreases, the face amount may be reduced to the amount of the current closure cost estimate following written approval by the director.

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

(a) The owner or operator substitutes alternative financial assurance for closure of the solid waste landfill as specified in this rule.

(b) The director notifies the owner or operator, in accordance with paragraph (O) of this rule that the owner or operator is no longer required to maintain financial assurance for closure of the solid waste landfill.

(K) Financial test and corporate guarantee for closure of a solid waste facility.

(1) The owner or operator may satisfy 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 demonstrate that less than fifty per cent of the parent corporation's gross revenues are derived from solid waste landfill, solid waste transfer facility, or scrap tire transporter operations, or if there is no parent corporation, the owner or operator shall demonstrate that less than fifty per cent of its gross revenues are derived from solid waste landfill, solid waste transfer facility, or scrap tire transporter operations and shall satisfy either of the following:

(a) The owner or operator shall have the following:

(i) Satisfaction of at least two of the following 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 minus ten million dollars to total liabilities greater than 0.1; a ratio of current assets to current liabilities greater than 1.5.

(ii) Net working capital and tangible net worth each at least six times the sum of the current closure and current post-closure care cost estimates, scrap tire transporter closure cost estimates, any corrective measures cost estimates, and any other obligations assured by a financial test.

(iii) Tangible net worth of at least ten million dollars.

(iv) Assets in the United States amounting to at least ninety per cent of total assets or at least six times the sum of the current and current post-closure care cost estimates, scrap tire transporter closure cost estimates, any current corrective measures cost estimates, and any other assured by a financial test.

(b) The owner or operator shall have the following:

(i) Issued a corporate bond for which the owner or operator, as the issuing entity, has not received a

current rating of less than BBB as issued by "Standard and Poor's" or Baa as issued by "Moody's." Owners or operators using bonds that are secured by collateral or a guarantee shall meet the minimum rating without that security.

(ii) Tangible net worth at least six times the sum of the current closure and current post-closure care cost estimates, scrap tire transporter closure cost estimates, any corrective measures cost estimates, and any other obligations assured by a financial test.

(iii) Tangible net worth of at least ten million dollars.

(iv) Assets in the United States amounting to at least ninety per cent of total assets or at least six times the sum of the current closure and current post-closure care cost estimates, scrap tire transporter closure cost estimates, any current corrective measures cost estimates, and any other obligations assured by a financial test.

(2) Current closure and current post-closure care cost estimates, scrap tire transporter closure cost estimates, any current corrective measures cost estimates, and any other obligations assured by a financial test as used in paragraph (K)(1) of this rule refers to the cost estimates required to be shown in the letter from the owner's or operator's chief financial officer.

(3) To demonstrate that requirements of this test are met, the owner or operator shall submit the following items to the director and into the operating record in accordance with rule 3745-27-09 of the Administrative Code:

(a) A letter signed by the owner's or operator's chief financial officer and worded as specified in paragraph (F) of rule 3745-27-17 of the Administrative Code on forms prescribed by the director.

(b) A copy of a report by an independent certified public accountant examining the owner's or the operator's financial statements for the most recently completed fiscal year.

(c) A special report from the owner's or the operator's independent certified public accountant, in the form of an agreed-upon procedures report, to the owner or operator stating the following:

(i) The independent certified public accountant has compared the data which the letter from the chief financial officer specifies as having been derived from the independently audited year-end financial statements for the most recent fiscal year with the amounts in such financial statements.

(ii) In connection with the agreed-upon procedures report, the independent certified public accountant states that the independent certified public accountant agrees the specified data is accurate.

(4) After the initial submission of the items specified in paragraph (K)(3) of this rule, the owner or operator shall send updated information to the director and submit updated information into the operating record in accordance with rule 3745-27-09 of the Administrative Code not later than ninety days after the close of each succeeding fiscal year. This information shall include all three items specified in paragraph (K)(3) of this rule.

(5) If the owner or operator no longer meets paragraph (K)(1) of this rule, the owner or operator shall send a notice to the director of the intent to establish alternative financial assurance as specified in this rule. The notice shall be sent by certified mail or any other form of mail accompanied by a receipt not later than 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 of paragraph (K)(1) of this rule. The owner or operator shall also place a copy of the notice in the operating record. The owner or operator shall provide alternative financial assurance not later than one hundred twenty days after the end of such fiscal year.

(6) The director may, based on a reasonable belief that the owner or operator no longer meets paragraph (K)(1) of this rule, require reports of financial condition at any time from the owner or operator in addition to those specified in paragraph (K)(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 (K)(1) of this rule, the owner or operator shall provide alternative financial assurance as specified in this rule not later than thirty days after notification of such a finding.

(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 the report on examination of the owner's or operator's financial statements. An adverse opinion or disclaimer of opinion will be cause for disallowance. The director shall evaluate other qualifications on an individual basis. The owner or operator shall provide alternative financial assurance as specified in this rule not later than thirty days after notification of the disallowance.

(8) The owner or operator is no longer required to submit the items specified in paragraph (K)(3) of this rule when either of the following occur:

(a) The owner or operator substitutes alternative financial assurance for closure of a solid waste landfill.

(b) The director notifies the owner or operator, in accordance with paragraph (O) of this rule that the owner or operator is no longer required to maintain financial assurance for closure of a solid waste landfill or scrap tire transporter.

(9) The owner or operator may meet this rule by obtaining a written guarantee, hereafter referred to as a corporate guarantee. The guarantor shall be the parent corporation of the owner or operator. The guarantor shall meet the requirements for an owner or operator in paragraphs (K)(1) to (K)(7) of this rule and shall comply with the terms of the corporate guarantee. The wording of the corporate guarantee shall be identical to the wording specified in paragraph (G) of rule 3745-27-17 of the Administrative Code on forms prescribed by the director. The corporate guarantee shall accompany the items sent to the director as specified in paragraph (K)(3) of this rule. The terms of the corporate guarantee shall provide the following:

(a) The owner or operator shall perform closure of a solid waste landfill provided for by the corporate guarantee in accordance with the closure/post-closure care plan, permit or registration requirements, and applicable rules.

(b) The guarantor shall perform the activities specified in paragraph (K)(9)(a) of this rule or shall establish a trust fund in the name of the owner or operator as specified in paragraph (F) of this rule if the owner or operator fails to perform the activities specified in paragraph (K)(9)(a) of this rule.

(c) The corporate guarantee shall remain in force unless the guarantor sends notice of cancellation by certified mail or any other form of mail accompanied by a receipt to the owner or operator and to the director. Cancellation may not occur, however, during the one hundred twenty day period beginning on the first day that both the owner or operator and the director have received notice of cancellation,

as evidenced by the return receipts.

(d) If the owner or operator fails to provide alternative financial assurance as specified in this rule or fails to obtain the written approval of such alternative financial assurance from the director not later than ninety days after both the owner or operator and the director have received notice of cancellation of the corporate guarantee from the guarantor, the guarantor shall provide such alternative financial assurance in the name of the owner or operator.

(L) Local government financial test for closure.

(1) For the purposes of this rule, "local government" means a subdivision of the state of Ohio including but not limited to a municipal corporation, a county, a township, a single or joint county solid waste management district, or a solid waste management authority.

(2) A local government may satisfy the requirements of this rule by demonstrating that the local government passes a financial test as specified in this paragraph. This test consists of a financial component, a public notice component, and a record-keeping and reporting component. In order to satisfy the financial component of the test, a local government shall meet the following criteria:

(a) A local government's financial statements shall be prepared in accordance with generally accepted accounting principles for local governments available from the financial accounting standards board.

(b) A local government shall not have operated at a deficit equal to five per cent or more of total annual revenue in either of the past two fiscal years.

(c) A local government shall not currently be in default on any outstanding general obligation bonds.

(d) A local government shall not have any outstanding general obligation bonds rated lower than BBB as issued by "Standard and Poor's" or Baa as issued by "Moody's." Local governments using bonds that are secured by collateral or a guarantee shall meet the minimum rating without that security.

(3) A local government shall satisfy either of the following:

(a) A local government shall demonstrate the following:

(i) A ratio of cash plus marketable securities to total expenditures greater than or equal to 0.05.

(ii) A ratio of annual debt service to total expenditures less than or equal to 0.20.

(iii) A ratio of long term debt issued and outstanding to capital expenditures less than or equal to 2.00.

(iv) A ratio of the current cost estimates for closure, post-closure care, corrective measures, scrap tire transporter closure, and any other obligations assured by a financial test, to total revenue less than or equal to 0.43.

(b) The local government shall demonstrate the following:

(i) Outstanding general obligation bonds for which the local government, as the issuing entity, has not received a current rating of less than BBB as issued by "Standard and Poor's" or Baa as issued by "Moody's." Local governments using bonds that are secured by collateral or a guarantee shall meet the minimum rating without that security.

(ii) A ratio of the current cost estimates for closure, post-closure care, corrective measures, scrap tire transporter closure, and any other obligations assured by a financial test, to total revenue less than or equal to 0.43.

(4) In order to satisfy the public notice component of the test, a local government shall in each year that the test is used, identify the current cost estimates in either its budget or its comprehensive annual financial report. The solid waste landfill covered, the categories of expenditures, including closure, post-closure care, corrective measures, scrap tire transporter closure, the corresponding cost estimate for each expenditure, and the anticipated year of the required activity shall be recorded. If the financial assurance obligation is to be included in the budget, it should either be listed as an approved budgeted line item, if the obligation will arise during the budget period, or in an appropriate supplementary data section, if the obligation will not arise during the budget period. If the information is to be included in the comprehensive annual financial report, it is to be included in the financial section as a footnote to the annual financial statements.

(5) To demonstrate that the local government meets the requirements of this test, the following shall be submitted to the director, and into the operating record in accordance with rule 3745-27-09 of the Administrative Code:

(a) A letter signed by the local government's chief financial officer and worded as specified in paragraph (H) of rule 3745-27-17 of the Administrative Code on forms prescribed by the director that includes the following:

(i) Lists all current cost estimates covered by a financial test.

(ii) Certifies that the local government meets the conditions of paragraph (L)(2) of this rule.

(iii) Provides evidence and certifies that the local government meets the conditions of either paragraph (L)(3)(a) or (L)(3)(b) of this rule.

(b) A copy of the local government's independently audited year-end financial statements for the latest fiscal year, including the unqualified opinion of the auditor. The auditor shall be an independent, certified public accountant or auditor of state.

(c) A special report from the independent certified public accountant or auditor of state, in the form of an agreed-upon procedures report, to the local government stating the following:

(i) The independent certified public accountant or auditor of state has compared the data which the letter from the chief financial officer specifies as having been derived from the independently audited year-end financial statements for the most recent fiscal year with the amounts in such financial statements.

(ii) In connection with the agreed-upon procedures report, that the independent certified public accountant agrees the specified data is accurate.

(6) After the initial submission of the items specified in this rule, a local government shall send updated information to the director on forms prescribed by the director, and submit updated information into the operating record in accordance with rule 3745-27-09 of the Administrative Code not later than one

hundred eighty days after the close of each succeeding fiscal year. This information shall include all items specified in this rule.

(7) If a local government no longer meets the requirements of this rule, the local government shall send a notice to the director of the intent to establish alternative financial assurance as specified in this rule. The notice shall be sent by certified mail or any other form of mail accompanied by a receipt not later than one hundred fifty days after the end of the fiscal year for which the year-end financial data show that the local government no longer meets the requirements of this rule. The local government shall also place a copy of the notice in the operating record. The local government shall provide alternative financial assurance not later than one hundred eighty days after the end of such fiscal year.

(8) The director may, based on a reasonable belief that the local government no longer meets the requirements of this rule, require reports of financial condition at any time from the local government in addition to those specified in this rule. If the director finds, on the basis of such reports or other information, that the local government no longer meets the requirements of this rule, the local government shall provide alternative financial assurance as specified in this rule not later than thirty days after notification of such a finding.

(9) The director may disallow use of this test on the basis of qualifications in the opinion expressed by the independent certified public accountant or auditor of state in the report on examination of the local government's financial statements. An adverse opinion or disclaimer of opinion will be cause for disallowance. The director shall evaluate other qualifications on an individual basis. The local government shall provide alternative financial assurance as specified in this rule not later than thirty days after notification of the disallowance.

(10) A local government is no longer required to submit the items specified in this rule when one of the following occur:

(a) The local government substitutes alternative financial assurance for closure as specified in this rule.

(b) The director notifies the local government, in accordance with paragraph (O) of this rule, that the local government is no longer required to maintain financial assurance for closure of a solid waste landfill.

(M) Use of multiple financial assurance mechanisms. The owner or operator may satisfy this rule by establishing more than one financial assurance mechanism for the solid waste landfill. These mechanisms are limited to a trust fund, surety bond guaranteeing payment into a closure trust fund, letter of credit, insurance, and the local government financial test. The mechanisms shall be as specified in paragraphs (F), (G), (I), (J), and (L) respectively of this rule, except that it is the combination of mechanisms, rather than each single mechanism, which shall provide financial assurance for an amount at least equal to the current closure cost estimate. If the owner or operator uses a trust fund in combination with a surety bond or a letter of credit, 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 invoke use of any or all of the mechanisms, in accordance with paragraphs (F), (G), (I), (J), and (L) of this rule, to provide for closure of the solid waste landfill.

(N) Use of a financial assurance mechanism for multiple facilities. The owner or operator may use a financial

assurance mechanism specified in this rule to meet the financial assurance obligations for more than one solid waste facility or scrap tire transporter also owned or operated by the owner or operator. Evidence of financial assurance submitted to the director shall include a list showing, for each solid waste facility or scrap tire transporter, the name, address, and the amount of funds for closure assured by the financial assurance mechanism. The amount of funds available through the financial assurance mechanism shall be no less than the sum of the funds that would be available if a separate financial assurance mechanism had been established and maintained for each solid waste facility or scrap tire transporter.

(O) Release of the owner or operator of a solid waste landfill from this rule. The director shall notify the owner or operator in writing that the owner or operator is no longer required by this rule to maintain financial assurance for closure of the solid waste landfill, unless the director has reason to believe that closure has not been completed in accordance with Chapter 3745-27 or 3745-30 of the Administrative Code, as applicable, or the closure/post-closure care plan after receiving certifications from the owner or operator and an independent professional skilled in the appropriate disciplines that closure has been completed in accordance with the final closure/post-closure care plan, permit or registration requirements, or applicable rules.

[Comment: The notice releases the owner or operator only from the requirements for financial assurance for closure of the solid waste landfill; it does not release the owner or operator from legal responsibility for meeting the post-closure care standards or corrective measures, if applicable.]

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Effective: 6/15/2024

Five Year Review (FYR) Dates: 11/27/2023 and 06/15/2029

CERTIFIED ELECTRONICALLY

Certification

02/22/2024

Date

Promulgated Under:	119.03
Statutory Authority:	3734.02, 3734.71, 3734.72, 3734.73, 3734.74
Rule Amplifies:	3734.02, 3734.12, 3734.71, 3734.72, 3734.73, 3734.74
Prior Effective Dates:	03/01/1990, 05/31/1991, 06/01/1992, 06/01/1994, 03/01/1996, 05/15/1997, 09/01/2002, 11/01/2007, 01/01/2017, 05/28/2021

3745-27-16 Financial assurance for sanitary landfill facility post-closure care.

(A) Applicability.

(1) Financial assurance information shall be submitted as part of a permit to install for a new sanitary landfill facility, for a modification that increases the post-closure care cost estimate of an existing facility, or as part of a permit to install application submitted in response to division (A)(3) or (A)(4) of section 3734.05 of the Revised Code.

(2) For sanitary landfill facilities subject to paragraph (A) of rule 3745-27-11 or 3745-30-09 of the Administrative Code, as applicable, the owner or operator shall submit to Ohio EPA a post-closure care financial assurance instrument in accordance with this rule.

[Comment: The requirements of this rule do not apply to solid waste incinerators subject to the requirements of rules 3745-27-50 to 3745-27-53 of the Administrative Codeor scrap tire collection, storage, recovery, mobile recovery facilities or scrap tire transporters subject to rules 3745-27-54 to 3745-27-67 of the Administrative Code, because there are no post-closure care requirements for these types of facilities or operations.]

(B) Implementation.

(1) The owner or operator of a sanitary landfill facility shall execute and fund the post-closure care financial assurance instrument submitted as a part of a permit to install prior to receipt of solid waste at a new sanitary landfill facility, a modification that increases post-closure care cost estimates of an existing sanitary landfill facility, or prior to issuance of a permit to install for which an application was submitted in response to division (A)(3) or (A)(4) of section 3734.05 of the Revised Code.

(2) The owner or operator of sanitary landfill facilities subject to paragraph (A) of rule 3745-27-11 or 3745-30-09 of the Administrative Code, as applicable, shall execute and fund the post-closure care financial assurance instrument not later than sixty days after approval of the final closure/post-closure care plan.

(C) Post-closure care financial assurance instrument. The post-closure care financial assurance instrument shall contain an itemized written estimate, in current dollars, of the cost of post-closure care for the sanitary landfill facility in accordance with rule 3745-27-14 or 3745-30-10 of the Administrative Code, as applicable, or for a scrap tire monofill facility in accordance with rule 3745-27-74 of the Administrative Code. The estimate shall be based on a third party conducting the post-closure care activities. Ohio EPA may review, approve, or require revisions to the post-closure care cost estimate or to the post-closure care financial assurance instrument.

(D) Review of post-closure care financial assurance instruments. The owner or operator of a sanitary landfill facility shall submit the most recently adjusted post-closure care cost estimate to the director by certified mail or any other form of mail accompanied by a receipt. The owner or operator shall do the following:

(1) Annually review and analyze the post-closure care cost estimate and make any appropriate revisions to the estimates and to the financial assurance instrument whenever a change in the post-closure care activities increases the cost of post-closure care. Any revised post-closure care cost estimate shall be adjusted for inflation as specified in paragraph (D)(2) of this rule.

(2) Annually adjust the post-closure care cost estimate for inflation. The adjustment shall be made using the preceding February inflation factor derived from the annual implicit price deflator for gross domestic

product as published by the U.S. department of commerce. The inflation factor is the result of dividing the latest published annual deflator by the deflator for the previous year. The inflation adjustment shall be calculated as follows:

(a) For the first adjustment, by multiplying the post-closure care cost estimate by the inflation factor. The result is the adjusted post-closure care cost estimate.

(b) For subsequent adjustments, by multiplying the most recently adjusted post-closure care cost estimate by the most recent inflation factor.

(E) The owner or operator of a sanitary landfill facility shall select a post-closure care financial assurance mechanism from the list of mechanisms specified in paragraph (F)to (L) of this rule, except as otherwise specified by this rule, provided the owner or operator satisfies the criteria for use of that mechanism.

(F) Post-closure care trust fund.

(1) The owner or operator may satisfy the requirements of this rule by establishing a post-closure care trust fund that conforms to this paragraph and by sending an originally signed duplicate of the trust agreement to the director within the time period outlined in paragraph (B) of this rule and by submitting a copy into the operating record of the facility in accordance with rule 3745-27-09 of the Administrative Code, if applicable. The trustee shall be an entity that 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 3745-27-17 of the Administrative Code on forms prescribed by the director and shall be accompanied by a formal certification of acknowledgment. "Schedule A" of the trust agreement shall be updated not later than sixty days after a change in the amount of the current post-closure care cost estimate provided for in the agreement.

(3) A post-closure care trust fund shall be established to secure an amount at least equal to the current post-closure care cost estimate, except as provided in paragraph (M) of this rule. Except for payments made in accordance with paragraph (F)(4) of this rule, payments to the trust fund shall be made annually by the owner or operator during the pay-in period. The pay-in period shall be the anticipated life of the facility as calculated using the authorized maximum daily waste receipt and the approved volume of the sanitary landfill facility as shown in the authorizing document. A receipt from the trustee for each payment shall be submitted by the owner or operator to the director and the first payment into the post-closure care trust fund shall be at least equal to the current closure cost estimate divided by the number of years in the pay-in period, except as provided in paragraph (M) of this rule and shall be made in accordance with this rule. Subsequent payments to the post-closure care trust fund shall be made as follows:

(a) No later than thirty days after each anniversary date of the first payment. The amount of each subsequent payment shall be determined by performing the following calculation:

Next payment = (CE - CV) / Y

Where CE is the current post-closure care cost estimate, CV is the current value of the trust fund, and Y is the number of years remaining in the pay-in period.

(b) If the owner or operator establishes a trust fund, as specified in this rule, and the value of the trust fund is less than any revised current post-closure care cost estimate made during the pay-in period,

the amount of the current post-closure care cost estimate still to be paid into the trust fund shall be paid in over the pay-in period, as defined in paragraph (F)(3) of this rule. Payments shall continue to be made not later than thirty days after each anniversary date of the first payment pursuant to paragraph (F)(3)(a) of this rule. The amount of each payment shall be determined by performing the following calculation:

Next payment = (CE - CV) / Y

Where CE is the current post-closure care cost estimate, CV is the current value of the trust fund, and Y is the number of years remaining in the pay-in period.

(c) The owner or operator may make the first installment of the pay-in period by providing alternative financial insurance using one of the mechanisms specified in paragraph (G), (I), or (J) of this rule in an amount at least equal to the first installment. On the anniversary date of the first installment, the owner or operator shall pay into the trust an amount at least equal to the first and second installments required by this paragraph or select an alternative financial assurance mechanism.

(4) The owner or operator may accelerate payments into the trust fund or deposit the full amount of the current post-closure care cost estimate at the time the fund is established. The owner or operator shall maintain the value of the fund at no less than the value of the fund if annual payments were made as specified in paragraph (F)(3) of this rule.

(5) If the owner or operator establishes a post-closure care trust fund after having begun funding post-closure care under any mechanisms specified in this rule, the post-closure care trust fund shall be established by depositing the total value of all prior mechanisms into the newly established trust fund. The subsequent annual payments shall be made as specified in paragraph (F)(3) of this rule.

(6) After the pay-in period of a trust fund has ended and the current post-closure care cost estimate changes, the owner or operator shall compare the revised estimate to 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 revised estimate, the owner or operator shall, not later than sixty days after the change in the cost estimate, either deposit a sufficient amount into the trust fund so that the value after payment at least equals the amount of the current post-closure care cost estimate, or obtain alternative financial assurance as specified in this rule to compensate for the difference.

(7) The director shall instruct the trustee to release to the owner or operator such funds as the director specifies in writing after receiving one of the following requests from the owner or operator:

(a) Release of the amount in excess of the current post-closure care cost estimate, if the value of the trust fund is greater than the total amount of the current post-closure care cost estimate.

(b) Release of the amount in the trust fund that exceeds the amount required as a result of such substitution, if the owner or operator substitutes any of the alternative financial assurance mechanisms specified in this rule for all or part of the trust fund.

(8) Reimbursement for post-closure care at sanitary landfill facilities. After beginning post-closure care, the owner or operator, or any other person authorized by the owner, operator, or director to perform post-closure care, may request reimbursement for post-closure care expenditures by submitting itemized bills to the director. After receiving itemized bills for post-closure care activities, the director shall determine whether the post-closure care expenditures are in accordance with the final closure/post-closure care plan, permit requirements, and applicable rules, or are otherwise justified, and

if so, will instruct the trustee to make reimbursement in such amounts as the director specifies in writing. If the director determines that the cost of post-closure care will be greater than the value of the trust fund, the director may withhold reimbursement of such amounts as the director deems prudent until the director determines, in accordance with paragraph (O) of this rule, that the owner or operator is no longer required to maintain financial assurance for post-closure care of the facility.

(9) The director may agree to termination of a trust when one of the following occurs:

(a) The owner or operator substitutes alternative financial assurance for post-closure care as specified in this rule.

(b) The director notifies the owner or operator, in accordance with paragraph (O) of this rule, that the owner or operator is no longer required by this rule to maintain financial assurance for post-closure care of the facility.

(G) Surety bond guaranteeing payment into a post-closure care trust fund.

(1) The owner or operator may satisfy the requirements of this rule by obtaining a surety bond which conforms to this paragraph and by delivering the originally signed bond to the director by certified mail or any other form of mail accompanied by a receipt within the time period outlined in paragraphs (A) and (B) of this rule by submitting a copy of the bond into the operating record in accordance with rule 3745-27-09 of the Administrative Code, if applicable. The surety company issuing the bond shall at a minimum be among those listed as acceptable sureties on federal bonds in the most recent listing of approved sureties as published by the U.S. department of treasury.

(2) The wording of the surety bond shall be identical to in paragraph (B) of rule 3745-27-17 of the Administrative Code on forms prescribed by the director.

(3) The owner or operator who uses a surety bond to satisfy the requirement of this rule shall also establish a standby trust fund not later than when the bond is obtained. Under the terms of the surety 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 (F) of this rule, except as follows:

(a) An originally signed duplicate of the trust agreement shall be delivered to the director with the surety bond and a copy shall be placed in the operating record in accordance with rule 3745-27-09 of the Administrative Code, if applicable.

(b) Until the standby trust fund is funded, pursuant to the requirements of this rule, the following are not required:

(i) Payments into the trust fund as specified in paragraph (F) of this rule.

(ii) Revisions of "Schedule A" of the trust agreement to show current post-closure care cost estimate.

(iii) Annual valuations as required by the trust agreement.

(iv) Notices of nonpayment as required by the trust agreement.

(4) The bond shall guarantee that the surety shall become liable on the bond obligation unless the owner or operator does one of the following, as applicable:

(a) Funds the standby trust fund in an amount equal to the penal sum of the bond before the beginning of final closure of the facility.

(b) Funds the standby trust fund in an amount equal to the penal sum of the bond not later than fifteen days after a mandatory final closure requirement in accordance with the final closure/post-closure care plan, permit requirements, and applicable rules.

(c) Not later than ninety days after both the owner or operator and the director receive notice of cancellation of the bond from the surety, provides alternative financial assurance as specified in this rule and obtain the director's written approval of the alternative financial assurance provided.

(5) Under the terms of the bond, the surety shall 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 post-closure care cost estimate except as provided in paragraph (M) of this rule.

(7) Whenever the current post-closure care cost estimate increases to an amount greater than the penal sum of the bond, the owner or operator shall, not later than sixty days after the increase in the estimate, either cause the penal sum of the bond to be increased to an amount at least equal to the current post-closure care cost estimate and submit evidence of such increase to the director, and into the operating record in accordance with rule 3745-27-09 of the Administrative Code, if applicable, or obtain alternative financial assurance, as specified in this rule, to compensate for the increase. Whenever the current post-closure care cost estimate decreases, the penal sum may be reduced to the amount of the current post-closure care cost estimate following written approval by the director. Notice of an increase or a proposed decrease in the penal sum shall be sent to the director not later than sixty days after the change.

(8) Under the terms of the bond, the bond shall remain in force unless the surety sends written notice of cancellation by certified mail or any other form of mail accompanied by a receipt to the owner or operator and to the director. Cancellation cannot occur, however, during the one hundred twenty day period beginning on the first day that both the owner or operator and the director have received the notice of cancellation, as evidenced by the return receipts.

(9) The owner or operator may cancel the bond if the director has given prior written consent. The director shall provide such written consent to the surety bond company when one of the following occurs:

(a) The owner or operator substitutes alternate financial assurance for post-closure care as specified in this rule.

(b) The director notifies the owner or operator, in accordance with paragraph (O) of this rule that the owner or operator is no longer required to maintain financial assurance for post-closure care of the facility.

(H) Surety bond guaranteeing performance of post-closure care.

(1) The owner or operator may satisfy the requirements of this rule by obtaining a surety bond which conforms to the requirements of this paragraph and by delivering the originally signed bond to the director within the time period outlined in paragraphs (A) and (B) of this rule and by submitting a copy of the surety bond into the operating record of the facility in accordance with rule 3745-27-09 of the Administrative Code, if applicable. The surety company issuing the bond shall at a minimum be among those listed as acceptable sureties on federal bonds in the most recent listing of approved sureties as

published by the U.S. department of the treasury.

(2) The wording of the surety bond shall be identical to the wording specified in paragraph (C) of rule 3745-27-17 of the Administrative Code on forms prescribed by the director.

(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 surety 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 paragraph (F) of this rule except as follows:

(a) An originally signed duplicate of the trust agreement shall be delivered to the director with the surety bond and a copy shall be placed in the operating record in accordance with rule 3745-27-09 of the Administrative Code, if applicable.

(b) Unless the standby trust fund is funded pursuant to this rule, the following are not required:

(i) Payments into the trust fund as specified in paragraph (F) of this rule.

(ii) Revisions of "Schedule A" of the trust agreement to show current post-closure care cost estimate.

(iii) Annual valuations as required by the trust agreement.

(iv) Notices of nonpayment as required by the trust agreement.

(4) The bond shall guarantee that the surety shall become liable on the bond obligation unless the owner or operator does one of the following, as applicable:

(a) Performs post-closure care in accordance with the final closure/post-closure plan, and applicable rules, and other requirements of the permit.

(b) Provides alternative financial assurance as specified in this rule, and obtains the director's written approval of the alternative financial assurance provided, not later than ninety days after both the owner or operator and the director receives 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. Following a determination by the director that the owner or operator of the solid waste facility has failed to perform post-closure care activities in accordance with the final closure/post-closure plan, applicable rules, and permit requirements, the surety shall perform post-closure care in accordance with the final closure/post-plan and permit requirements, or applicable rules, or will deposit the amount of the penal sum into the standby trust fund.

(6) The penal sum of the bond shall be in an amount at least equal to the current post-closure care cost estimate.

(7) Whenever the current post-closure care cost estimate increases to an amount greater than the penal sum of the bond, the owner or operator shall, not later than sixty days after the increase in the estimate, either cause the penal sum of the bond to be increased to an amount at least equal to the current post-closure care cost estimate and submit evidence of such increase to the director, and into the operating record in accordance with rule 3745-27-09 of the Administrative Code, if applicable, or obtain alternative financial assurance, as specified in this rule, to compensate for the increase. Whenever the current post-closure care cost estimate decreases, the penal sum may be reduced to the amount of the current post-closure care cost estimate following written approval by the director. Notice of an increase or a

proposed decrease in the penal sum shall be sent to the director by certified mail or any other form of mail accompanied by a receipt not later than sixty days after the change.

(8) Under the terms of the bond, the bond shall remain in force unless the surety sends written notice of cancellation by certified mail or any other form of mail accompanied by a receipt to the owner or operator and to the director. Cancellation cannot occur, however, during the one hundred twenty day period beginning on the first day that both the owner or operator and the director have received the notice of cancellation as evidenced by the return receipts.

(9) The owner or operator may cancel the bond if the director has given prior written consent. The director shall provide such written consent to the surety bond company when one of the following occurs:

(a) The owner or operator substitutes alternative financial assurance for post-closure care as specified in this rule.

(b) The director notifies the owner or operator, in accordance with paragraph (O) of this rule that the owner or operator is no longer required by this rule to maintain financial assurance for post-closure care of the facility.

(10) The surety shall not be liable for deficiencies in the completion of post-closure care activities by the owner or operator after the owner or operator has been notified by the director, in accordance with this rule, that the owner or operator is no longer required to maintain financial assurance for post-closure care of the facility.

(I) Post-closure care letter of credit.

(1) The owner or operator may satisfy the requirements this rule by obtaining an irrevocable standby letter of credit ("letter of credit") which conforms to this paragraph and by having the originally signed letter of credit delivered to the director by certified mail or any other form of mail accompanied by a receipt within the time period outlined in paragraphs (A) and (B) of this rule and by submitting a copy of the letter of credit into the operating record of the facility in accordance with rule 3745-27-09 of the Administrative Code, if applicable. 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 (D) of rule 3745-27-17 of the Administrative Code on forms prescribed by the director.

(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 shall be deposited promptly and directly by the issuing institution into the standby trust fund in accordance with instructions from the director. The standby trust fund shall meet the requirements of the trust fund specified in paragraph (F) of this rule, except as follows:

(a) An originally signed duplicate of the trust agreement shall be delivered to the director with the letter of credit, and a copy shall placed in the operating record in accordance with rule 3745-27-09 of the Administrative Code, if applicable.

(b) Unless the standby trust fund is funded pursuant to this rule, the following are not required:

(i) Payments into the trust fund as specified in paragraph (F) of this rule.

(ii) Updating of "Schedule A" of the trust agreement to show current post-closure care cost estimate.

(iii) Annual valuations as required by the trust agreement.

(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 following information: the names and addresses of the solid waste facility and the owner and the operator and the amount of funds assured for post-closure care of 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 prior to the current expiration date, the issuing institution notifies both the owner and operator and the director by certified mail or any other form of mail accompanied by a receipt of a decision not to extend the expiration date. Under the terms of the letter of credit, the one hundred twenty day period shall begin on the day 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 post-closure care cost estimate, except as provided in paragraph (M) of this rule.

(7) Whenever the current post-closure care cost estimate increases to an amount greater than the amount of the credit, the owner or operator shall, not later than sixty days after this increase, either cause the amount of the credit to be increased to an amount at least equal to the current post-closure care cost estimate and submit evidence of such increase to the director and into the operating record in accordance with rule 3745-27-09 of the Administrative Code, if applicable, or obtain alternative financial assurance, as specified in this rule, to compensate for the increase. Whenever the current post-closure care cost estimate decreases, the letter of credit may be reduced to the amount of the current post-closure care cost estimate following written approval by the director. Notice of an increase or a proposed decrease in the amount of the letter of credit shall be sent to the director by certified mail or any other form of mail accompanied by a receipt not later than sixty days after the change.

(8) Under the terms of the letter of credit, the director may draw on the letter of credit following a determination that the owner or operator has failed to do either of the following:

(a) Perform post-closure care activities in accordance with the final closure/post-closure care plan, permit requirements, and applicable rules.

(b) Provide alternative financial assurance as specified in this rule and obtain written approval of such alternative financial assurance from the director not later than ninety days after the owner or operator and the director have received notice from the issuing institution that it will not extend the letter of credit beyond the current expiration date. The director shall draw on the letter of credit and may delay the drawing if the issuing institution grants an extension of the term of the credit. During the final thirty days of any such extension the director shall draw on the letter of credit if the owner or operator has failed to provide alternative financial assurance as specified in this rule and has failed to obtain written approval of such alternative financial assurance from the director.

(9) The director shall return the original letter of credit to the issuing institution for termination when either of the following occur:

(a) The owner or operator substitutes alternative financial assurance for post-closure care as specified in this rule.

(b) The director notifies the owner or operator, in accordance with paragraph (O) of this rule that the owner or operator is no longer required to maintain financial assurance for post-closure care of the facility.

(J) Post-closure care insurance.

(1) The owner or operator may satisfy this rule by obtaining post-closure care insurance that conforms to the requirements of this paragraph and by submitting a originally certificate of such insurance to the director by certified mail or any other form of mail accompanied by a receipt within the time period outlined in paragraphs (A) and (B) of this rule, and by submitting a copy of the certificate of insurance into the operating record in accordance with rule 3745-27-09 of the Administrative Code, if applicable. 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 (E) of rule 3745-27-17 of the Administrative Code on forms prescribed by the director.

(3) The post-closure care insurance policy shall be issued for a face amount at least equal to the current post-closure care cost estimate except as provided in paragraph (M) of this rule. 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 post-closure care insurance policy shall guarantee that funds will be available to perform post-closure care whenever mandated. The policy shall also guarantee that once post-closure care begins, 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) Reimbursement for post-closure care. After beginning post-closure care, the owner or operator, or any other person authorized by the owner, operator, or director to perform post-closure care, may request reimbursement for post-closure care expenditures by submitting itemized bills to the director. After receiving itemized bills for post-closure care activities, the director shall determine whether the post-closure care expenditures are in accordance with rule 3745-27-14 or 3745-30-10 of the Administrative Code, as applicable, and the final closure/post-closure plan, applicable rules, the permit, or are otherwise justified, and if so, shall instruct the insurer to make reimbursement in such amounts as the director specifies in writing. If the director has reason to believe that the cost of post-closure care will be greater than the face amount of the policy, the director may withhold reimbursement of such amounts as the director deems prudent until he determines, in accordance with paragraph (O) of this rule, that the owner or operator is no longer required to maintain financial assurance for post-closure care of the facility.

(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 (J)(10) of this rule. Failure to pay the premium, without substitution of alternative financial assurance as specified in this rule, shall constitute a violation of these rules, warranting such remedy as the director deems necessary. Such violation shall 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. At a minimum, the automatic renewal of the policy shall 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 or any other form of mail accompanied by a receipt to the owner or operator and to the director. Cancellation, termination, or failure to renew may not occur and the policy will remain in full force and effect, if the following occurs on or before the date of expiration:

(a) Post-closure care activities required in the final closure/post-closure care plan, permit requirements, and applicable rules have not been completed.

(b) Post-closure care of the facility is ordered by the director or a court of competent jurisdiction.

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

(d) The premium due is paid.

(9) Whenever the current post-closure care cost estimate increases to an amount greater than the face amount of the policy, the owner or operator shall, not later than sixty days after the increase, either cause the face amount to be increased to an amount at least equal to the current post-closure care cost estimate and submit evidence of such increase to the director, and into the operating record in accordance with rule 3745-27-09 of the Administrative Code, if applicable, or obtain alternative financial assurance as specified in this rule to compensate for the increase. Whenever the current post-closure care cost estimate decreases, the face amount may be reduced to the amount of the current post-closure care cost estimate following written approval by the director.

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

(a) The owner or operator substitutes alternative financial assurance for post-closure care as specified in this rule.

(b) The director notifies the owner or operator, in accordance with paragraph (O) of this rule that owner or operator is no longer required to maintain financial assurance for post-closure care of the facility.

(K) Financial test and corporate guarantee for post-closure care.

(1) The 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 demonstrate that less than fifty per cent of the parent corporation's gross revenues are derived from solid waste disposal, solid waste transfer facility operations, or scrap tire transporter operations, or if there is no parent corporation, the owner or operator shall demonstrate that less than fifty per cent of its gross revenues are derived from solid waste facility, solid waste transfer facility, or scrap tire transporter operations and shall satisfy either of the following:

(a) The owner or operator shall have the following:

(i) Satisfaction of at least two of the following 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 minus ten million dollars to total liabilities greater than 0.1; a ratio of current assets to current liabilities greater than 1.5.

(ii) Net working capital and tangible net worth each at least six times the sum of the current final closure and current post-closure cost estimates, scrap tire transporter final closure cost estimates, any corrective measures cost estimates, and any other obligations assured by a financial test.

(iii) Tangible net worth of at least ten million dollars.

(iv) Assets in the United States amounting to at least ninety per cent of total assets or at least six times the sum of the current final closure and current post-closure care cost estimates, scrap tire transporter final closure cost estimates, any current corrective measures cost estimates, and any other obligations assured by a financial test.

(b) The owner or operator shall have one of the following:

(i) Issued a corporate bond for which the owner or operator, as the issuing entity, has not received a current rating of less than BBB as issued by "Standard and Poor's" or Baa as issued by "Moody's." Owners or operators using bonds that are secured by collateral or a guarantee shall meet the minimum rating without that security.

(ii) Tangible net worth at least six times the sum of the current final closure and current post-closure care cost estimates, scrap tire transporter final closure cost estimates, any corrective measures cost estimates, and any other obligations assured by a financial test.

(iii) Tangible net worth of at least ten million dollars.

(iv) Assets in the United States amounting to at least ninety per cent of total assets or at least six times the sum of the current final closure and current post-closure care cost estimates, scrap tire transporter final closure cost estimates, any current corrective measures cost estimates, and any other obligations assured by a financial test.

(2) Current final closure and current post-closure care cost estimates, scrap tire transporter final closure cost estimates, current corrective measures cost estimates, and any other obligations assured by a financial test as used in paragraph (K)(1) of this rule refers to the cost estimates required to be shown in the letter from the owner's or operator's chief financial officer.

(3) To demonstrate that requirements of this test are met, the owner or operator shall submit the following items to the director, and into the operating record in accordance with rule 3745-27-09 of the Administrative Code, if applicable:

(a) A letter signed by the owner's or operator's chief financial officer and worded as specified in paragraph (F) of rule 3745-27-17 of the Administrative Code on forms prescribed by the director.

(b) A copy of a report by an independent certified public accountant examining the owner's or the operator's financial statements for the most recently completed fiscal year.

(c) A special report from the owner's or the operator's independent certified public accountant, in the form of an agreed-upon procedures report, to the owner or operator stating the following:

(i) The independent certified public accountant has compared the data which the letter from the chief financial officer specifies as having been derived from the independently audited year-end financial statements for the most recent fiscal year with the amounts in such financial statements.

(ii) In connection with the agreed-upon procedures report, the independent certified public accountant states that the independent certified public accountant agrees the specified data is accurate.

(4) After the initial submission of the items specified in paragraph (K)(3) of this rule, the owner or operator shall send updated information to the director, and submit updated information into the operating record in accordance with rule 3745-27-09 of the Administrative Code, if applicable, not later than ninety days after the close of each succeeding fiscal year. This information shall include all three items specified in paragraph (K)(3) of this rule.

(5) If the owner or operator no longer meets paragraph (K)(1) of this rule, the owner or operator shall send notice to the director of the intent to establish alternative financial assurance as specified in this rule by certified mail or any other form of mail accompanied by a receipt not later than 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. A copy of the notice shall also be placed in the operating record, if applicable. The owner or operator shall provide alternative financial assurance not later than one hundred twenty days after the end of such fiscal year.

(6) The director may, based on a reasonable belief that the owner or operator no longer meets paragraph (K)(1) of this rule, require reports of financial condition at any time from the owner or operator in addition to those specified in paragraph (K)(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 paragraph (K)(1) of this rule, the owner or operator shall provide alternate financial assurance as specified in this rule not later than thirty days after notification of such a finding.

(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 the report on examination of the owner's or operator's financial statements. An adverse opinion or disclaimer of opinion will be cause for disallowance. The director shall evaluate other qualifications on an individual basis. The owner or operator shall provide alternate financial assurance as specified in this rule not later than thirty days after notification of the disallowance.

(8) The owner or operator is no longer required to submit the items specified in paragraph (K)(3) of this rule when either of the following occur:

(a) The owner or operator substitutes alternative financial assurance for post-closure care as specified in this rule.

(b) The director notifies the owner or operator, in accordance with paragraph (O) of this rule that the owner or operator is no longer required to maintain financial assurance for post-closure care of the facility.

(9) The owner or operator may meet this rule by obtaining a written guarantee, hereafter referred to as a corporate guarantee. The guarantor shall be the parent corporation of the owner or operator. The

guarantor shall meet the requirements for an owner or operator in paragraphs (K)(1) to (K)(7) of this rule and shall comply with the terms of the corporate guarantee. The wording of the corporate guarantee shall be identical to the wording specified in paragraph (G) of rule 3745-27-17 of the Administrative Code on forms prescribed by the director. The corporate guarantee shall accompany the items sent to the director as specified in paragraph (K)(3) of this rule. The terms of the corporate guarantee shall provide the following:

(a) The owner or operator shall perform post-closure care of a facility provided for by the corporate guarantee in accordance with the final closure/post-closure care plan, permit requirements, and applicable rules.

(b) The guarantor shall perform the activities in paragraph (K)(9)(a) of this rule or shall establish a trust fund in the name of the owner or operator as specified in paragraph (F) of this rule if the owner or operator fails to perform those activities.

(c) The corporate guarantee shall remain in force unless the guarantor sends notice of cancellation by certified mail or any other form of mail accompanied by a receipt to the owner or operator and to the director. Cancellation shall not occur, however, during the one hundred twenty day period beginning on the first day that both the owner or operator and the director have received notice of cancellation, as evidenced by the return receipts.

(d) If the owner or operator fails to provide alternative financial assurance as specified in this rule, and fails to obtain the written approval of such alternative financial assurance from the director not later than ninety days after both the owner or operator and the director have received notice of cancellation of the corporate guarantee from the guarantor, the guarantor shall provide such alternative financial assurance in the name of the owner or operator.

(L) Local government financial test for post-closure care.

(1) For the purposes of this rule, "local government" means a subdivision of the state of Ohio including but not limited to a municipal corporation, a county, a township, a single or joint county solid waste management district, or a solid waste management authority.

(2) A local government may satisfy the requirements of this rule by demonstrating that the local government passes a financial test as specified in this paragraph. This test consists of a financial component, a public notice component, and a record-keeping and reporting component. In order to satisfy the financial component of the test, a local government shall meet the following criteria:

(a) A local government's financial statements shall be prepared in accordance with generally accepted accounting principles for local governments available from the financial accounting standards board.

(b) A local government shall not have operated at a deficit equal to five per cent or more of total annual revenue in either of the past two fiscal years.

(c) A local government shall not currently be in default on any outstanding general obligation bonds.

(d) A local government shall not have any outstanding general obligation bonds rated lower than BBB as issued by "Standard and Poor's" or Baa as issued by "Moody's." Local governments using bonds that are secured by collateral or a guarantee must meet the minimum rating without that security.

(3) A local government shall satisfy either of the following:

(a) The local government shall demonstrate the following:

(i) A ratio of cash plus marketable securities to total expenditures greater than or equal to 0.05.

(ii) A ratio of annual debt service to total expenditures less than or equal to 0.20.

(iii) A ratio of long term debt issued and outstanding to capital expenditures less than or equal to 2.00.

(iv) A ratio of the current cost estimates for final closure, post-closure care, corrective measures, scrap tire transporter final closure, and any other obligations assured by a financial test, to total revenue less than or equal to 0.43.

(b) The local government shall demonstrate the following:

(i) Outstanding general obligation bonds for which the local government, as the issuing entity, has not received a current rating of less than BBB as issued by "Standard and Poor's" or Baa as issued by "Moody's." Local governments using bonds that are secured by collateral or a guarantee must meet the minimum rating without that security.

(ii) A ratio of the current cost estimates for final closure, post-closure care, corrective measures, scrap tire transporter final closure, and any other obligations assured by a financial test, to total revenue less than or equal to 0.43.

(4) In order to satisfy the public notice component of the test, a local government shall in each year the test is used, identify the current cost estimates in either its budget or its comprehensive annual financial report. The facility covered, the categories of expenditures, including final closure, post-closure care, corrective measures, scrap tire transporter final closure, the corresponding cost estimate for each expenditure, and the anticipated year of the required activity shall be recorded. If the financial assurance obligation is to be included in the budget, it shall either be listed as an approved budgeted line item, if the obligation will arise during the budget period, or in an appropriate supplementary data section, if the obligation will not arise during the budget period. If the information is to be included in the comprehensive annual financial report, it is to be included in the financial section as a footnote to the annual financial statements.

(5) To demonstrate that a local government meets the requirements of this test, the following must be submitted to the director, and into the operating record in accordance with rule 3745-27-09 of the Administrative Code, if applicable:

(a) A letter signed by the local government's chief financial officer and worded as specified in paragraph (H) of rule 3745-27-17 of the Administrative Code on forms prescribed by the director that does the following:

(i) Lists all the current cost estimates covered by a financial test.

(ii) Certifies that the local government meets the conditions of paragraph (L)(1) of this rule.

(iii) Provides evidence and certifies that the local government meets the conditions of either paragraph (L)(2)(a) or (L)(2)(b) of this rule.

(b) A copy of the local government's independently audited year-end financial statements for the latest fiscal year, including the unqualified opinion of the auditor. The auditor must be an independent,

certified public accountant or auditor of state.

(c) A special report from the independent certified public accountant or auditor of state, in the form of an agreed-upon procedures report, to the local government stating the following:

(i) The independent certified public accountant or auditor of state has compared the data which the letter from the chief financial officer specifies as having been derived from the independently audited year-end financial statements for the most recent fiscal year with the amounts in such financial statements.

(ii) In connection with the agreed-upon procedures report, that the independent certified public accountant agrees the specified data is accurate.

(6) After the initial submission of the items specified in this rule, a local government shall send updated information to the director on forms prescribed by the director, and submit updated information into the operating record in accordance with rule 3745-27-09 of the Administrative Code, if applicable, not later than one hundred eighty days after the close of each succeeding fiscal year. This information shall include all items specified in this rule.

(7) If a local government no longer meets this rule, the owner or operator shall send notice to the director of the intent to establish alternative financial assurance as specified in this rule by certified mail or any other form of mail accompanied by a receipt not later than one hundred fifty days after the end of the fiscal year for which the year-end financial data show that the local government no longer meets the requirements. A copy of the notice shall also be placed in the operating record, if applicable. The local government shall provide alternative financial assurance not later than one hundred eighty days after the end of such fiscal year.

(8) The director may, based on a reasonable belief that the local government no longer meets the requirements of this rule, require reports of financial condition at any time from the local government in addition to those specified in this rule. If the director finds, on the basis of such reports or other information, that the local government no longer meets the requirements of this rule, the local government shall provide alternative financial assurance as specified in this rule not later than thirty days after notification of such a finding.

(9) The director may disallow use of this test on the basis of qualifications in the opinion expressed by the independent certified public accountant or auditor of state in the report on examination of the local government's financial statements. An adverse opinion or disclaimer of opinion will be cause for disallowance. The director shall evaluate other qualifications on an individual basis. The local government shall provide alternative financial assurance as specified in this rule not later than thirty days after notification of the disallowance.

(10) The local government is no longer required to submit the items specified in this rule when one of the following occur:

(a) The local government substitutes alternative financial assurance for post-closure care as specified in this rule.

(b) The director notifies the local government, in accordance with paragraph (O) of this rule, that the local government is no longer required to maintain financial assurance for post-closure care of the facility.

(M) Use of multiple financial assurance mechanisms. The owner or operator may satisfy this rule by establishing more than one financial assurance mechanism for each facility. These mechanisms are limited to a trust fund, surety bond guaranteeing payment into a post-closure care trust fund, letter of credit, insurance, and the local government financial test. The mechanisms shall be as specified in paragraphs (F), (G), (I), (J), and (L) respectively of this rule, except that it is the combination of mechanisms, rather than each single mechanism, which shall provide financial assurance for an amount at least equal to the current post-closure care cost estimate. If an owner or operator uses a trust fund in combination with a surety bond or a letter of credit, 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 invoke use of any or all of the mechanisms, in accordance with paragraphs (F), (G), (I), (J), and (L) of this rule, to provide for post-closure care of the facility.

(N) Use of a financial assurance mechanism for multiple facilities. The owner or operator may use a financial assurance mechanism specified in this rule to meet this rule for more than one facility. Evidence of financial assurance submitted to the director shall include a list showing, for each facility, the name, address, and the amount of funds for post-closure care assured by the financial assurance mechanism. The amount of funds available through the financial assurance mechanism shall be no less than the sum of the funds that would be available if a separate financial assurance mechanism had been established and maintained for each facility.

(O) Release of the owner or operator of a solid waste facility from this rule. The director shall notify the owner or operator in writing that the owner or operator is no longer required, by this rule, to maintain financial assurance for post-closure care of a particular facility, unless the director has reason to believe that post-closure care has not been completed in accordance with rule 3745-27-14 or 3745-30-10 of the Administrative Code or the final closure/post-closure plan after receiving certifications from the owner or operator and an independent professionals skilled in the appropriate disciplines that post-closure care has been completed in accordance with the final closure/post-closure care plan, permit requirements, and applicable rules.

[Comment: The notice releases the owner or operator only from the requirements for financial assurance for post-closure care of the facility; it does not release the owner or operator from legal responsibility for meeting the final closure standards or corrective measures, if applicable.]

3745-27-16

Effective:	5/28/2021
Five Year Review (FYR) Dates:	11/5/2020 and 05/28/2026

CERTIFIED ELECTRONICALLY

Certification

05/14/2021

Date

Promulgated Under:	119.03
Statutory Authority:	3734.02, 3734.71, 3734.72, 3734.73, 3734.74
Rule Amplifies:	3734.02, 3734.12, 3734.71, 3734.72, 3734.73, 3734.74
Prior Effective Dates:	03/01/1990, 06/01/1992, 06/01/1994, 03/01/1996, 05/15/1997, 09/01/2002, 01/01/2017

3745-27-17 Wording of financial assurance instruments.

(A)

(1) A trust agreement for a trust fund as specified in paragraph (F) of rules 3745-27-15, 3745-27-16, or paragraph (G) of rule 3745-27-18 of the Administrative Code, must be worded as follows on forms prescribed by the director, 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 [state] [corporation, partnership, association, proprietorship], the "grantor," and [name of corporate trustee], ["incorporated in the state of _____" or "a national bank"], the "trustee."

Whereas, the Ohio Environmental Protection Agency, ("Ohio EPA"), has established certain rules applicable to the grantor, requiring that the owner or operator of a solid waste facility or a scrap tire transporter provide assurance that funds will be available when needed for final closure, post-closure care, or, corrective measures at the facility, or for scrap tire transporter final closure.

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 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.

(c) The term "director" means the director of environmental protection or the director's authorized representative.

Section 2. Identification of facilities and cost estimates. This agreement pertains to a solid waste facility or a scrap tire transporter and cost estimates identified on attached schedule A [on schedule A, for each facility and scrap tire transporter list the name, address, and the current final closure, post-closure care, scrap tire transporter final closure, or corrective measures 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 the Ohio EPA. 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 will be held by the trustee, in trust, as hereinafter provided. The trustee shall not be responsible nor shall it

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 the Ohio EPA.

Section 4. Payment for final closure and post-closure care, scrap tire transporter final closure, and corrective measures. The trustee will make such payments from the fund as the director will direct, in writing, to provide for the payment of the costs of final closure, post-closure care, or corrective measures at the facility or scrap tire transporter final closure covered by this agreement. The trustee will reimburse the grantor or other persons as specified by the director from the fund for final closure, post-closure care, scrap tire transporter final closure, or corrective measures expenditures in such amounts as the director will direct, in writing. In addition, the trustee will refund to the grantor such amounts as the director specifies in writing. Upon refund, such funds will no longer constitute part of the fund as defined herein.

Section 5. Payments comprising the fund. Payments made to the trustee for the fund will consist of cash or securities acceptable to the trustee.

Section 6. Trustee management. The trustee will 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 periodically, subject, however, to the provisions of this section. In investing, reinvesting, exchanging, selling, and managing the fund, the trustee will discharge the trustee's 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 scrap tire transporter, or any of their affiliates as defined in the Investment Company Act of 1940, as amended, 15 U.S.C. section 80a-2(a), will 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;

(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 periodically 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;

(b) To purchase shares in any investment company registered under the Investment Company Act of 1940, 15 U.S.C. sections 80a-1 et seq., 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 discretion 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 will 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 will 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;

(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 will be paid from the fund. All other expenses, proper charges, and disbursements, 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 will be paid from the fund. Expenses, proper charges, and disbursements include fees for legal services, rendered to the trustee and the compensation of the trustee to the extent the grantor fails to compensate the trustee pursuant to section 12.

Section 10. Annual valuation. The trustee will annually, not later than thirty days prior to the anniversary date of the establishment of the fund, furnish to the grantor and to the director a statement confirming the value of the trust. Any securities in the fund will 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 not later than ninety days after the statement has been furnished to the grantor and the director will 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 periodically 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 will be fully protected, to the extent permitted by law, in acting upon the advice of counsel.

Section 12. Trustee compensation. The trustee will be entitled to reasonable compensation from the grantor for the trustee's services as agreed upon in writing periodically 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 will have the same powers and duties as those conferred upon the trustee hereunder. Upon the successor trustee's acceptance of the appointment, and upon the director's written approval, the trustee will 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 or any other form of mail accompanied by a receipt not later than ten days before such change becomes effective. The director's written approval must be given prior to the ten days notice provided by the successor trustee. Any expenses incurred by the trustee as a result of any of the acts contemplated by this section will be paid as provided in section 9.

Section 14. Instructions to the trustee. All orders, requests, and instructions by the grantor to the trustee will 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 will 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 will be in writing, signed by the director, and the trustee will act and will be fully protected in acting in accordance with such orders, requests, and instructions. The trustee will 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 will have no duty to act in the absence of such orders, requests, and instructions from the grantor or the director except as provided for herein.

Section 15. Notice of nonpayment. The trustee will notify the grantor and the director by certified mail not later than ten days after the expiration of the thirty-day period following the anniversary of the establishment of the trust, if no payment is received from the grantor during the period. After the pay-in period is completed, the trustee is not required to send a notice of nonpayment.

Section 16. 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 17. Irrevocability and termination. Subject to the right of the parties to amend this agreement as provided in section 16, this trust will be irrevocable and will continue until termination 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, will be delivered to the grantor, unless the trust is a standby trust fund created in accordance with a surety bond guaranteeing payment into a trust fund, a surety bond guaranteeing performance, or a letter of credit, in which case all remaining trust property, less final trust administration expenses, will be delivered to the provider of the financial assurance.

Section 18. Immunity and indemnification. The trustee will 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 will 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 will be administered, construed, and enforced according to the laws of the state of Ohio.

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 will 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 3745-27-17 of the Administrative Code as such rule was 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 must accompany the trust agreement for a trust fund as specified in paragraph (F) of rules 3745-27-15, 3745-27-16, or in paragraph (G) of rule 3745-27-18 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], and 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: As required in paragraph (F)(2) of rules 3745-27-15, 3745-27-16, or paragraph (G)(2) of rule 3745-27-18 of the Administrative Code, the trust agreement must be accompanied by a formal certification of acknowledgment. The previous paragraph is only an example.]

(B) A surety bond guaranteeing payment into a trust fund, as specified in paragraph (G) of rules 3745-27-15, 3745-27-16, or in paragraph (H) of rule 3745-27-18 of the Administrative Code, must be worded as follows on forms prescribed by the director, 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)]

Name, address, and final closure, post-closure care, scrap tire transporter final closure, or corrective measures amount(s) for each facility or scrap tire transporter guaranteed by this bond [indicate final closure, post-closure care, scrap tire transporter final closure, or corrective measures amounts separately]:

$_____

Total penal sum of bond: $_____

Surety's bond number:_____

Know all persons by these presents, that we, the principal and surety(ies) hereto are firmly bound to the Ohio Environmental Protection Agency ("Ohio EPA"), 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 to have an Ohio EPA permit(s) or registration, in order to operate each solid waste facility identified above, or a scrap tire transporter registration;

Whereas, said principal is required to provide financial assurance for final closure, or final closure and post-closure care, or post-closure care, or corrective measures of the facility or scrap tire transporter final closure as a condition of Chapter 3734. of the Revised Code;

Whereas said principal shall establish a standby trust fund in accordance with rule 3745-27-15, 3745-27-16, or 3745-27-18 of the Administrative Code,

Now, therefore, for solid waste facility, the conditions of the obligation are such that if the principal shall faithfully, before the beginning of final closure, post-closure care or corrective measures, of each facility identified above, fund the standby trust fund in the amount identified above for the facility,

Now, therefore, for a scrap tire transporter, the conditions of the obligation are such that if the principal shall faithfully, before the registration expires, fund the standby trust fund in the amount identified above for the scrap tire transporter,

Or, if the principal shall fund the standby trust fund in such an amount not later than fifteen days after an order to begin final closure is issued by the director, or an Ohio court, or a U.S. district court, or other court of competent jurisdiction, or not later than fifteen days after a notice of revocation of the solid waste facility license or the denial, suspension, or revocation of the registration,

Or, if the principal shall provide alternate financial assurance in accordance with rule 3745-27-15, 3745-27-16, or 3745-27-18 of the Administrative Code, as applicable, and obtain the director's written approval of such alternate financial assurance, not later than ninety days after the first day that notice of cancellation has been received by both the principal and the director from the surety(ies), then this obligation will be null and void; otherwise it 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 the 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 or scrap tire transporter 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 or any other form of mail accompanied by a receipt to the principal and to the director, provided, however, that cancellation shall not occur during the one hundred twenty day period beginning on the first day of receipt of the notice of cancellation by both the principal and the director, as evidenced by the return receipt(s).

The principal may terminate this bond by sending written notice to the surety(ies) and the director, 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.

[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 annually so that it guarantees a new final closure, post-closure care, scrap tire transporter final closure, or corrective measures 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.

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 3745-27-17 of the Administrative Code as such rule was constituted on the date this bond was executed.

Principal

Signature(s):_____

Name(s) and title(s) [typed]:_____

Corporate seal:

Corporate surety(ies)

Name and address:_____

State of incorporation:_____

Liability limit: $_____

Signature(s):_____

Name(s) and title(s) [typed]:_____

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 surety bond guaranteeing performance of final closure, post-closure care, scrap tire transporter final closure, or corrective measures, as specified in paragraph (H) of rules 3745-27-15, 3745-27-16, or paragraph (I) of rule 3745-27-18 of the Administrative Code, must be worded as follows on forms prescribed by the director, except that instructions in brackets are to be replaced by the relevant information and the brackets deleted:

"Performance 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)]

Name, address, and final closure, post-closure care, scrap tire transporter final closure, or corrective measures amount for each facility or scrap tire transporter guaranteed by this bond [indicate final closure, post-closure care, scrap tire transporter final closure, and corrective measures amounts separately]: $_____

Total penal sum of bond: $_____

Surety's bond number:_____

Know all persons by these presents, that we, the principal and surety(ies) hereto are firmly bound to the Ohio Environmental Protection Agency ("Ohio EPA"), 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 to have an Ohio EPA permit(s) or registration in order to operate each solid waste facility or scrap tire transporter identified above, and

Whereas said principal is required to provide financial assurance for final closure, or final closure and post-closure care, or post-closure care, or corrective measures as a condition of the permit(s) or registration(s), 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, for a solid waste facility, the conditions of this obligation are such that if the principal shall faithfully perform final closure whenever required to do so, of each facility for which this bond guarantees final closure, in accordance with the final closure/post-closure plan, and other requirements of the permit as such plan and permit may be amended, pursuant to all applicable laws, statutes, rules, and regulations, as such laws, statutes, rules, and regulations may be amended.

And, for a solid waste facility, if the principal shall faithfully perform post-closure care of each facility for which this bond guarantees post-closure care, in accordance with the final closure/post-closure plan and other requirements of the permit, as such plan and permit may be amended, pursuant to all applicable laws, statutes, rules, and regulations, as such laws, statutes, rules, and regulations may be amended.

And, for a solid waste facility, if the principal shall faithfully perform corrective measures at each facility for which this bond guarantees corrective measures in accordance with the corrective measures plan and other requirements of the permit, as such plan and permit may be amended, pursuant to all applicable laws, statutes, rules, and regulations, as such laws, statutes, rules, and regulations may be amended.

Now, for a scrap tire transporter, if the principal shall faithfully perform the activities specified in paragraph (H)(4)(b) of rule 3745-27-15 of the Administrative Code for which this bond guarantees, pursuant to all applicable laws, statutes, rules, and regulations, as such laws, statutes, rules, and regulations may be amended.

Or, if the principal shall provide alternate financial assurance as specified in rules 3745-27-15, 3745-27-16, or 3745-27-18 of the Administrative Code and obtain the director's written approval of such alternate financial assurance not later than ninety days after the date notice of cancellation is received by both the principal and the director from surety(ies), then this obligation will be null and void, otherwise it 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.

[The following paragraph is only required for those solid waste facilities required to conduct final closure

activities and should not be included in surety bonds for scrap tire transporters.]

Upon notification by the director that the principal has been found in violation of the final closure requirements of [Insert "rule 3745-27-11 of the Administrative Code," if the facility is a municipal solid waste landfill facility or scrap tire monocell facility, "rule 3745-29-11 of the Administrative Code," if the facility is an industrial solid waste landfill facility, "rule 3745-30-09 of the Administrative Code," if the facility is a residual solid waste landfill facility, "rule 3745-27-23 of the Administrative Code," if the facility is a solid waste transfer facility, "Chapter 3745-560 of the Administrative Code," if the facility is a composting facility, "rule 3745-27-53 of the Administrative Code," if the facility is a solid waste incinerator, "rule 3745-27-66 of the Administrative Code," if the facility is a scrap tire storage or recovery facility, or "rule 3745-27-73 of the Administrative Code," if the facility is a scrap tire monofill], for a facility for which this bond guarantees performance of final closure, the surety(ies) shall either perform final closure in accordance with the final closure/post-closure plan and other permit or registration requirements or place the final closure amount guaranteed for the facility into the standby trust fund as directed by the director.

[The following paragraph is only required for sanitary landfill facilities, because only they are required to conduct post-closure care activities.]

Upon notification by the director that the principal has been found in violation of the post-closure care requirements of rule 3745-27-14, 3745-29-14, 3745-30-10, or 3745-27-74 of the Administrative Code, whichever is applicable, for a facility for which this bond guarantees performance of post-closure care, the surety(ies) shall either perform post-closure care in accordance with the final closure/post-closure plan and other permit requirements or place the post-closure care amount guaranteed for the facility into the standby trust fund as directed by the director.

[The following paragraph is only required for municipal solid waste landfill facilities, because only they are required to conduct corrective measures activities.]

Upon notification by the director that the principal has been found in violation of the corrective measures requirements of rule 3745-27-10 of the Administrative Code, for a facility for which this bond guarantees performance of corrective measures, the surety(ies) shall either perform the corrective measures in accordance with the corrective measures plan and other permit requirements or place the corrective measures amount guaranteed for the facility into the standby trust fund as directed by the director.

[The following paragraph is only required for scrap tire transporters.]

Upon notification by the director that the principal has failed to remove accumulations of scrap tires, delivered by the scrap tire transporter to a location not authorized to receive scrap tires by paragraph (C)(1) of rule 3745-27-56 of the Administrative Code, or failed to remove and properly dispose of any scrap tires which have been open dumped by the scrap tire transporter, or has been found to be in violation of rule 3745-27-79 of the Administrative Code, the surety(ies) shall either perform the required activities in accordance with applicable rules or place the amount guaranteed for the scrap tire transporter into the standby trust fund as directed by the director.

Upon notification by the director that the principal has failed to provide alternate financial assurance as specified in rule 3745-27-15, 3745-27-16, or 3745-27-18 of the Administrative Code and obtain written approval of such alternate financial assurance from the director not later than ninety days after receipt by both the principal and the director of a notice of cancellation of the bond, the surety(ies) shall place funds in

the amount guaranteed for the facility or scrap tire transporter into the standby trust fund as directed by the director.

The surety(ies) hereby waive(s) notification of amendments to the final closure/post-closure plan, permits, applicable laws, statutes, rules, and regulations and agrees that no such amendment shall in any way alleviate its (their) obligation on this bond.

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 or any other form of mail accompanied by a receipt to the owner or operator and to the director, provided, however, that cancellation cannot occur during the one hundred twenty day period beginning on the first day of receipt of the notice of cancellation by both the principal and the director, as evidenced by the return receipts.

The principal may terminate this bond by sending written notice to the surety(ies) and the director, provided, however, that no such notice shall become effective until the surety(ies) receive(s) written approval for termination of the bond by the director.

[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 annually so that it guarantees a new final closure, post-closure care, scrap tire transporter final closure, or corrective measures 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 occurs without the written approval of the director.

In witness whereof, the principal and surety(ies) have executed this performance 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 (C) of rule 3745-27-17 of the Administrative Code, as such rule was constituted on the date this bond was executed.

Principal

Signature(s):_____

Name(s) and title(s) [typed]:_____

Corporate seal:_____

Corporate surety(ies)

Name and address:_____

State of incorporation:_____

Liability limit: $_____

Signature(s):_____

Name(s) and title(s) [typed]:_____

Corporate seal:

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

Bond premium: $_____"

(D) A letter of credit as specified in paragraph (I) of rules 3745-27-15, 3745-27-16, or paragraph (J) of rule 3745-27-18 of the Administrative Code must be worded as follows on forms prescribed by the director, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted [note: A letter of credit may also contain provisions used by the issuing institution in its regular course of business, provided that such provisions do not alter the terms and conditions in this paragraph]:

"Irrevocable standby letter of credit

[Director]

Ohio Environmental Protection Agency

Dear sir or madam: We hereby establish our irrevocable standby letter of credit no._____ in your favor, 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 the authority of Chapter 3734. of the Revised Code as amended."

This letter of credit is effective as of [date] and will expire on [date of at least one year later], but such expiration date will 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 prior to the current expiration date, we notify both you and [owner's or operator's name] by certified mail or any other form of mail accompanied by a receipt that we have decided not to extend this letter of credit beyond the current expiration date. In the event that you are so notified, any unused portion of the credit will be available upon presentation of your sight draft for one hundred twenty days after the first day of receipt by both you and [owner's or operator's name] as evidenced by the return receipts.

Whenever this letter of credit is drawn under and in compliance with the terms of this credit, we will duly honor such draft upon presentation to us, and we will deposit the amount of the draft directly into the standby trust fund by [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 (D) of rule 3745-27-17 of the Administrative Code as such rule was 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 by the International Chamber of Commerce" or "The Uniform Commercial Code"]."

[Comment: In the event that the owner or operator ceases to exist, any unused portion of the credit will be available for the one hundred twenty day period after the date of receipt by the director, as evidenced by the return receipt.]

(E) A certificate of insurance, as specified in paragraph (J) of rules 3745-27-15, 3745-27-16, or paragraph (K) of rule 3745-27-18 of the Administrative Code, must be worded as follows on forms prescribed by the director, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

"Certificate of insurance for final closure, post-closure care, corrective measures, or scrap tire transporter final closure

Name and address of insurer

(Herein called the "insurer"):_____

Name and address of insured

(Herein called the "insured"):_____

Facilities or scrap tire transporters covered: [list for each facility or scrap tire transporter: name, address, county in which the solid waste facility or scrap tire transporter is located, and the amount of insurance for final closure, post-closure care, scrap tire transporter final closure or corrective measures provided under the insurance policy (the aggregate amount for all facilities or scrap tire transporters covered must 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 for [insert "final closure," "final closure and post-closure care," "post-closure care," "corrective measures," or "scrap tire transporter final closure"] for the facilities or scrap tire transporters identified above. The insurer further warrants that such insurance policy conforms in all respects with the requirements of paragraph (J) of rules 3745-27-15, 3745-27-16, or paragraph (K) of rule 3745-27-18 of the Administrative Code, as applicable as such rules were constituted on the date shown immediately below. It is agreed that any provision of the insurance policy inconsistent with such regulations is hereby amended to eliminate such inconsistency.

Whenever requested by the director of the Ohio Environmental Protection Agency, the insurer agrees to furnish to the director a duplicate original of the insurance policy listed above, including all endorsements thereon.

I hereby certify that the wording of this certificate is identical to the wording specified in paragraph (E) of rule 3745-27-17 of the Administrative Code as such rule was 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]"

(F) A letter from the chief financial officer, as specified in paragraph (K) of rules 3745-27-15, 3745-27-16, or paragraph (L) of rule 3745-27-18 of the Administrative Code must be worded as follows on forms prescribed by the director, 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, Ohio Environmental Protection Agency.]

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 Chapter 3745-27 of the Administrative Code.

[Fill out the following three paragraphs regarding facilities or scrap tire transporters and associated cost estimates. If your firm has no facilities or scrap tire transporters that belong in a particular paragraph, write "none" in the space indicated. For each facility or scrap tire transporter, include its name, address, county, and current final closure, post-closure care, scrap tire transporter final closure, or corrective measures cost estimates and any other environmental obligations, if any. Identify each cost estimate as to whether it is for final closure, post-closure care, scrap tire transporter final closure, or corrective measures.]

(1) This firm is the owner or operator of the following facilities or scrap tire transporters for which financial assurance for final closure, post-closure care, corrective measures, or scrap tire transporter final closure is demonstrated through the financial test specified in Chapter 3745-27 of the Administrative Code or this firm is the owner or operator of the following facilities for which financial assurance for any other environmental obligations are assured by a financial test. The current final closure, post-closure care, scrap tire transporter final closure, or corrective measures cost estimates, and any other environmental obligations, provided for by a financial test are shown for each solid waste facility or scrap tire transporter: $_____.

(2) This firm guarantees, through the corporate guarantee specified in Chapter 3745-27 of the Administrative Code, the final closure, post-closure care, or corrective measures of the following facilities permitted by subsidiaries of this firm or final closure for scrap tire transporters or this firm guarantees, through the corporate guarantee, any other environmental obligations of the following facilities permitted by subsidiaries of this firm. The current cost estimates for the final closure, post-closure care, scrap tire transporter final closure, or corrective measures, and any other environmental obligations, so guaranteed are shown for each solid waste facility or scrap tire transporter final closure: $_____.

(3) This firm is the owner or operator of the following facilities or scrap tire transporters for which financial assurance requirements for final closure, scrap tire transporter final closure, post-closure care, or corrective measures or any other environmental obligations are satisfied through a financial test other

than that required by chapter 3745-27 of the Administrative Code. The current final closure, post-closure care, scrap tire transporter final closure, or corrective measures cost estimates, or any other environmental obligations covered by such financial assurance are shown for each facility or scrap tire transporter:

$_____.

This firm [insert "is required" or "is not required"] to file a form 10k with the Securities and Exchange Commission (SEC) for the most recent 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 most recently completed fiscal year, ended [date].

[Fill in Alternative I if the criteria of paragraph (K)(1)(a) of rules 3745-27-15, 3745-27-16, or paragraph (L)(1)(a) of rule 3745-27-18 of the Administrative Code are used. Fill in Alternative II if the criteria of paragraph (K)(1)(b) of rules 3745-27-15, 3745-27-16, or of paragraph (L)(1)(b) of rule 3745-27-18 of the Administrative Code are used.]

Alternative I	
1.	Sum of current final closure, post-closure care, scrap tire transporter final closure, or corrective measures cost estimates, and any other environmental obligations assured by a financial test (total of all cost estimates shown in the three paragraphs above): $_____.
*2.	Total liabilities [if any portion of the final closure, post-closure care, scrap tire transporter final closure, or corrective measures cost estimate 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 minus $10 million: $_____.
*9.	Total assets in U.S. (required only if less than 90% of firm's assets are located in the U.S.): $_____.

		Yes	No
10.	Is line 3 at least $10 million? . . .		
11.	Is line 3 at least 6 times line 1? . . .		
12.	Is line 7 at least 6 times line 1? . . .		
*13.	Are at least 90% of firm's assets located in the U.S.? . . . If not, complete line 14.		

14.	Is line 9 at least 6 times line 1? . . .		
15.	Is line 2 divided by line 4 less than 2.0? . . .		
16.	Is line 8 divided by line 2 greater than 0.1? . . .		
17.	Is line 5 divided by line 6 greater than 1.5? . . .		

Alternative II	
1.	Sum of current final closure, post-closure care, scrap tire transporter final closure, or corrective measures cost estimates, and any other environmental obligations assured by a financial test (total of all cost estimates shown in the three 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 final closure, post-closure care, scrap tire transporter final closure, and corrective measures 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.): $_____.

		Yes	No
7.	Is line 5 at least $10 million? . . .		
8.	Is line 5 at least 6 times line 1? . . .		
*9.	Are at least 90% of firm's assets located in the U.S.? . . . If not, complete line 10.		
10.	Is line 6 at least 6 times line 1? . . .		

I hereby certify that the wording of this letter is identical to the wording specified in paragraph (F) of rule 3745-27-17 of the Administrative Code as such rule was constituted on the date shown immediately below.

[Signature]

[Name]

[Title]

[Date]"

(G) A corporate guarantee, as specified in paragraph (K) of rules 3745-27-15, 3745-27-16, or paragraph (L) of rule 3745-27-18 of the Administrative Code, must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

"Corporate guarantee for final closure, post-closure care, corrective measures, or scrap tire transporter final closure.

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, to the Ohio Environmental Protection Agency ("Ohio EPA"), obligee on behalf of our subsidiary [owner or operator] of [business address].

Recitals

1. Guarantor meets or exceeds the financial test criteria and agrees to comply with the reporting requirements for guarantors as specified in paragraph (K) of rules 3745-27-15, 3745-27-16, or paragraph (L) of rule 3745-27-18 of the Administrative Code.

2. [Owner or operator] responsible for the following facility(ies) or scrap tire transporter(s) covered by this guarantee: [List for each facility or scrap tire transporter: name and address. Indicate for each whether guarantee is for final closure, post-closure care, both, corrective measures, or for scrap tire transporter final closure].

3. Final closure/post-closure plans or corrective measures plans as used below refer to the plans maintained as required by Chapter 3745-27 of the Administrative Code for the final closure, post-closure care, and corrective measures of a facility, as identified above.

4. For value received from [owner or operator], guarantor guarantees to the Ohio EPA that in the event that [owner or operator] fails to perform [insert "final closure," "post-closure care," "final closure/post-closure care," or "corrective measures"] of the above facility in accordance with the final closure/post-closure plans or corrective measures plans and other permit requirements, as applicable, or, for a scrap tire transporter, in the event the owner or operator fails to remove and properly dispose of any accumulation of scrap tires delivered to a location not authorized to receive scrap tires by paragraph (C)(1) of rule 3745-27-56 of the Administrative Code, or fails to remove and properly dispose of any scrap tires which have been open dumped by the scrap tire transporter, or has been found to be in violation of rule 3745-27-79 of the Administrative Code, the guarantor shall remove and properly dispose of the scrap tires or establish a trust fund as specified in Chapter 3745-27 of the Administrative Code, as applicable, in the name of [owner or operator] in the amount of the current final closure, post-closure care, scrap tire transporter final closure, or corrective measures cost estimates as specified in Chapter 3745-27 of the Administrative Code.

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 notice to the director, Ohio EPA, and to [owner or operator], not later than ninety days after the end of such fiscal year, by certified mail or any other form of mail accompanied by a receipt, that the guarantor intends to provide alternate financial assurance as specified in Chapter 3745-27 of the Administrative Code, in the name of [owner or operator]. Not later than one hundred twenty days after the end of such fiscal year, the guarantor shall establish such alternate financial assurance unless [owner or operator] has done so.

6. The guarantor agrees to notify the director by certified mail or any other form of mail accompanied by a receipt, of a voluntary or involuntary proceeding under "Title 11 (bankruptcy)," U.S. Code, naming guarantor as debtor, not later than ten days after commencement of the proceeding.

7. Guarantor agrees that not later than thirty days after being notified by the director of a determination that guarantor no longer meets the financial test criteria or that the guarantor is disallowed from continuing as a guarantor of final closure, post-closure care, corrective measures, or scrap tire transporter final closure, the guarantor shall establish alternate financial assurance as specified in Chapter 3745-27 of the Administrative

Code, 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 final closure/post-closure plan or corrective measures plan, amendment or modification of the permit or registration, extension or reduction of the time of performance of final closure, post-closure care, or corrective measures, or any other modification or alteration of an obligation of the owner or operator pursuant to Chapter 3745-27 of the Administrative Code.

9. Guarantor agrees to remain bound under this guarantee for so long as [owner or operator] shall comply with the applicable financial assurance requirements of Chapter 3745-27 of the Administrative Code for the above listed facilities or scrap tire transporter, except that guarantor may cancel this guarantee by sending notice by certified mail or any other form of mail accompanied by a receipt to the director and [owner or operator], such cancellation to become effective not earlier than one hundred twenty days after receipt of such notice by both Ohio EPA and [owner or operator], as evidenced by the return receipts.

10. Guarantor agrees that if [owner or operator] fails to provide alternate financial assurance as specified in Chapter 3745-27 of the Administrative Code, and obtain written approval of such alternate financial assurance from the director not later than ninety days after a notice of cancellation by the guarantor is received by the director from guarantor, guarantor shall provide such alternate financial assurance in the name of [owner or operator].

11. Guarantor expressly waives notice of acceptance of this guarantee by the Ohio EPA or by [owner or operator]. Guarantor also expressly waives notice of amendments or modifications of the facility permit(s) or registration(s) or the scrap tire transporter registration.

I hereby certify that the wording of this guarantee is identical to the wording specified in paragraph (G) of rule 3745-27-17 of the Administrative Code as such rule was 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:_____"

(H) A letter from the chief financial officer of a local government, as specified in paragraph (L) of rules 3745-27-15, 3745-27-16, or in paragraph (M) of rule 3745-27-18 of the Administrative Code must be worded as follows on forms prescribed by the director, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

[Comment: For the purposes of this rule, local government is defined as a subdivision of the state of Ohio including, but not limited to, a municipal corporation, a county, a township, a single or joint county solid waste management district, or a solid waste management authority.]

"Letter from chief financial officer of a local government

[Address to director, Ohio Environmental Protection Agency.]

I am the chief financial officer of [name and address of local government]. This letter is in support of this local government's use of the financial test to demonstrate financial assurance, as specified in chapter 3745-27 of the Administrative Code.

[Fill out the following paragraphs regarding facilities and scrap tire transporters and the associated cost estimates. If there are no facilities or scrap tire transporters that belong in a particular paragraph, write "none" in the space indicated. For each solid waste facility or scrap tire transporter, include its name, address, county, and current final closure, post-closure care, scrap tire transporter final closure, or corrective measures cost estimates, and any other environmental obligations. Identify each cost estimate as to whether it is for final closure, post-closure care, scrap tire transporter final closure, or corrective measures, and all other environmental obligations.]

(1) This local government is the owner or operator of the following facilities or scrap tire transporters for which financial assurance for final closure, post-closure care, scrap tire transporter final closure, or corrective measures is demonstrated through the financial test specified in chapter 3745-27 of the Administrative Code or this local government is the owner or operator of the following facilities for which financial assurance for any other environmental obligations are assured by a financial test. The current final closure, post-closure care, scrap tire transporter final closure, or corrective measures cost estimates, and any other environmental obligations provided for by a test are shown: $_____.

(2) This local government is the owner or operator of the following facilities or scrap tire transporter for which financial assurance requirements for final closure, post-closure care, scrap tire transporter final closure, corrective measures, or any other environmental obligations are satisfied through a financial test other than that required by chapter 3745-27 of the Administrative Code. The current final closure, post-closure care, scrap tire transporter final closure, or corrective measures cost estimates, or any other environmental obligations covered by such financial assurance are shown for each facility or scrap tire transporter: $_____.

The fiscal year of this local government ends on [month, day]. The figures for the following items marked with an asterisk are derived from this local government's independently audited, year-end financial statements for the most recently completed fiscal year, ended [date]. [Comment: The figures for the following items must be contained in the audited financial statements from the most recently completed fiscal year.]

[Fill in Alternative I if the criteria of paragraph (L)(3)(a) of rule 3745-27-15, 3745-27-16, or paragraph (M)(3)(a) of rule 3745-27-18 of the Administrative Code are used. Fill in Alternative II if the criteria of paragraph (L)(3)(b) of rule 3745-27-15, 3745-27-16, or of paragraph (M)(3)(b) of rule 3745-27-18 of the Administrative Code are used.]

Alternative I	
1.	Sum of current final closure, post-closure care, scrap tire transporter final closure, or corrective measures cost estimates, and any other environmental obligations assured by a financial test (total of all cost estimates shown in the paragraphs above): $_____.

*2.	Sum of cash and marketable securities: $_____.
*3.	Total expenditures: $_____.
*4.	Annual debt service: $_____.
*5.	Long-term debt: $_____.
*6.	Capital expenditures: $_____.
*7.	Total assured environmental costs: $_____.
*8.	Total annual revenue: $_____.

		Yes	No
9.	Is line 2 divided by line 3 greater than or equal to 0.05? . . .		
10.	Is line 4 divided by line 3 less than or equal to 0.20? . . .		
11.	Is line 5 divided by line 6 less than or equal to 2.00? . . .		
12.	Is line 7 divided by line 8 less than or equal to 0.43? . . . If not, complete lines 13 and 14.		
13.	Multiply line 8 by 0.43 = $_____. This is the maximum amount allowed to assure environmental costs.		
14.	Line 13 subtracted from line 7 = $_____. This amount must be assured by another financial assurance mechanism listed in paragraphs (F), (G), (I), or (J), in rules 3745-27-15, 3745-27-16, and paragraphs (G), (H), (J), or (K) in rule 3745-27-18 of the Administrative Code.		

Alternative II	
1.	Sum of current final closure, post-closure care, scrap tire transporter final closure, corrective measures cost estimates, and any other environmental obligations assured by a financial test (total of all cost estimates shown in the paragraphs above): $_____.
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.	Total assured environmental costs: $_____.
*6.	Total annual revenue: $_____.

		Yes	No
7.	Is line 5 divided by line 6 less than or equal to 0.43? ..... If not, complete lines 8 and 9.		
8.	Multiply line 6 by 0.43 = $_____. This is the maximum amount allowed to assure environmental costs.		
9.	Line 8 subtracted from line 5 = $_____. This amount must be assured by another financial assurance mechanism listed in paragraphs (F), (G), (I), or (J), in rules 3745-27-15, 3745-27-16, and paragraphs (G), (H), (J), or		

	(K) in rule 3745-27-18 of the Administrative Code.		

I hereby certify that the wording of this letter is identical to the wording specified in paragraph (H) of rule 3745-27-17 of the Administrative Code as such rule was constituted on the date shown immediately below. I further certify the following: (1) that the local government's financial statements are prepared in conformity with generally accepted accounting principles for governments; (2) that the local government has not operated at a deficit equal to five per cent or more of total annual revenue in either of the past two fiscal years; (3) that the local government is not in default on any outstanding general obligation bonds; and, (4) that the local government does not have outstanding general obligations rated less than BBB as issued by "Standard and Poor's" or Baa as issued by "Moody's."

[Signature]

[Name]

[Title]

[Date]"

(I) An existing trust agreement with the wording set forth in paragraphs (A)(1) and (A)(2) of this rule may be utilized to satisfy the trust agreement wording requirements set forth in paragraphs (A)(1) and (A)(2) of rule 3745-503-20 of the Administrative Code.

(J) An existing surety bond guaranteeing payment into a trust fund with the wording set forth in paragraph (B) of this rule may be utilized to satisfy the surety bond guaranteeing payment into a trust fund wording requirements set forth in paragraph (B) of rule 3745-503-20 of the Administrative Code.

(K) An existing surety bond guaranteeing performance with the wording set forth in paragraph (C) of this rule may be utilized to satisfy the surety bond guaranteeing performance wording requirements set forth in paragraph (C) of rule 3745-503-20 of the Administrative Code.

(L) An existing letter of credit with the wording set forth in paragraph (D) of this rule may be utilized to satisfy the letter of credit wording requirements set forth in paragraph (D) of rule 3745-503-20 of the Administrative Code.

(M) An existing certificate of insurance with the wording set forth in paragraph (E) of this rule may be utilized to satisfy the certificate of insurance wording requirements set forth in paragraph (E) of rule 3745-503-20 of the Administrative Code.

(N) An existing letter from the chief financial officer with the wording set forth in paragraph (F) of this rule may be utilized to satisfy the letter from the chief financial officer wording requirements set forth in paragraph (F) of rule 3745-503-20 of the Administrative Code.

(O) An existing corporate guarantee with wording set forth in paragraph (G) of this rule may be utilized to satisfy the corporate guarantee wording requirements set forth in paragraph (G) of rule 3745-503-20 of the Administrative Code.

(P) An existing letter from the chief financial officer of a local government as set forth in paragraph (H) of this rule may be utilized to satisfy the letter from the chief financial officer of a local government wording requirements set forth in paragraph (H) of rule 3745-503-20 of the Administrative Code.

Effective:	4/22/2019
Five Year Review (FYR) Dates:	1/22/2019 and 04/22/2024

CERTIFIED ELECTRONICALLY

Certification

04/10/2019

Date

Promulgated Under:	119.03
Statutory Authority:	3734.02, 3734.12
Rule Amplifies:	3734.02, 3734.12, 3734.71, 3734.72, 3734.73, 3734.74
Prior Effective Dates:	03/01/1990, 05/31/1991, 06/01/1994, 03/01/1996, 05/15/1997, 09/01/2002, 02/04/2013

3745-27-18 Corrective measures financial assurance for a solid waste landfill.

For the purposes of this rule, "owner or operator" means the owner or operator of a solid waste landfill.

(A) Applicability.

Except as provided in paragraph (C) of this rule, this rule is applicable to an owner or operator subject to corrective measures pursuant to rule 3745-27-10 of the Administrative Code through the occurrence of any of the following:

(1) The director selects a corrective measure in accordance with paragraph (F)(10) of rule 3745-27-10 of the Administrative Code.

(2) The director designates interim corrective measures to protect human health or the environment in accordance with paragraph (F)(6) of rule 3745-27-10 of the Administrative Code.

(3) The director obligates the owner or operator to conduct corrective measures as a condition of a permit.

(B) Implementation.

(1) If the owner or operator is subject to corrective measures pursuant to a selection or designation of a plan in accordance with paragraph (A)(1) or (A)(2) of this rule, the owner or operator shall do the following:

(a) Not later than ninety days after selection or designation of corrective measures in accordance with paragraph (A)(1) or (A)(2) of this rule, execute a corrective measures financial assurance instrument, deliver the originally signed corrective measures financial assurance instrument to the director by certified mail or any other form of mail accompanied by a receipt, and place a copy of the corrective measures financial assurance instrument into the operating record in accordance with rule 3745-27-09 of the Administrative Code.

(b) Not later than one hundred twenty days after selection or designation of corrective measures in accordance with paragraph (A)(1) or (A)(2) of this rule, fund the corrective measures financial assurance instrument.

(2) If the owner or operator is subject to corrective measures pursuant to rule 3745-27-10 of the Administrative Code as a condition of permit issuance, the owner or operator shall do the following:

(a) Upon permit issuance, comply with this rule.

(b) Not later than the date of permit issuance, execute the corrective measures financial assurance instrument, and prior to receipt of solid wastes in the units authorized by the permit, fund the corrective measures financial assurance instrument.

(C) This rule does not apply to the following:

(1) The owner or operator of an industrial landfill facility or residual landfill facility subject to the requirements of Chapter 3745-30 of the Administrative Code.

(2) The owner or operator of a solid waste landfill that ceased acceptance of solid waste prior to June 1, 1994 as evidenced by the notification submitted in accordance with paragraph (E) of rule 3745-27-11 of the

Administrative Code.

(D) Corrective measures financial assurance instrument.

The corrective measures financial assurance instrument shall contain an itemized written estimate, in current dollars, based on the total cost for a third party to conduct the corrective measures activities as described in the corrective measures plan for the entire corrective measures period for all units of the solid waste landfill subject to the corrective measures pursuant to rule 3745-27-10 of the Administrative Code. The owner or operator shall prepare a separate estimate for each noncontiguous unit of the solid waste landfill undergoing corrective measures pursuant to rule 3745-27-10 of the Administrative Code.

(E) Review of corrective measures financial assurance instrument. The owner or operator shall review the corrective measures cost estimate as follows and submit the most recently adjusted corrective measures cost estimate to the director by certified mail or any other form of mail accompanied by a receipt:

(1) Annually review and analyze the corrective measures cost estimate.

(2) If a change in the corrective measures activities increases the cost of corrective measures, revise the corrective measures cost estimate to account for the increase.

(3) Annually adjust the corrective measures cost estimate for inflation using the preceding February inflation factor derived from the annual implicit price deflator for gross domestic product as published by the U.S. department of commerce. The inflation factor is the result of dividing the latest published annual deflator by the deflator for the previous year~~.~~ and is calculated as follows:

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

(b) Subsequent adjustments are made by multiplying the most recently adjusted corrective measures cost estimate by the most recent inflation factor.

(F) The owner or operator subject to corrective measures pursuant to paragraph (A)(1) or (A)(2) of this rule shall select a corrective measures financial assurance mechanism from the list of mechanisms specified in paragraphs (G) to (M) of this rule, provided the owner or operator satisfies the criteria for use of that mechanism.

(G) Corrective measures trust fund.

(1) The owner or operator may satisfy this rule by establishing a corrective measures trust fund that conforms to this paragraph, and by sending an originally signed duplicate of the trust agreement to the director by certified mail or any other form of mail accompanied by a receipt within the time period outlined in paragraph (B) of this rule and by submitting a copy of the trust agreement into the operating record of the facility in accordance with rule 3745-27-09 of the Administrative Code. The trustee shall be an entity that 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 3745-27-17 of the Administrative Code on forms prescribed by the director and be accompanied by a formal certification of acknowledgment. "Schedule A" of the trust agreement shall be updated not later

than sixty days after a change in the amount of the current corrective measures cost estimate provided for in the agreement.

(3) A corrective measures trust fund shall be established to secure an amount at least equal to the current corrective measures cost estimate, except as provided in paragraph (N) of this rule. Payments to the trust fund shall be made quarterly, except as permitted by paragraph (G)(4) of this rule, by the owner or operator over the term of the projected corrective measures period as outlined in the applicable authorizing document, including permit to install or plan approval, this period is hereafter referred to as the pay-in period. The owner or operator shall submit to the director a receipt from the trustee of each payment into the trust fund. The first payment into the corrective measures trust fund shall be made in accordance with paragraph (B) of this rule and be at least equal to the current corrective measures cost estimate divided by the number of quarters in the pay-in period, except as provided in paragraph (N) of this rule. Subsequent payments to the corrective measures trust fund shall be made as follows:

(a) Not later than thirty days after each quarter following the first payment. The amount of each subsequent payment shall be determined by performing the following calculation:

Next payment = (CE - CV) / Q

Where CE is the current corrective measures cost estimate, CV is the current value of the trust fund, and Q is the number of quarters remaining in the pay-in period.

(b) If the owner or operator establishes a trust fund, as specified in this rule, and the value of the trust fund is less than any revised current corrective measures cost estimate made during the pay-in period, the amount of the current corrective measures cost estimate still to be paid into the trust fund shall be paid in by the owner or operator over the pay-in period. The owner or operator shall continue to make payments not later than thirty days after each quarter following the first payment pursuant to paragraph (G)(3)(a) of this rule. The amount of each payment shall be determined by performing the following calculation:

Next payment = (CE - CV) / Q

Where CE is the current corrective measures cost estimate, CV is the current value of the trust fund, and Q is the number of quarters remaining in the pay-in period.

(4) The owner or operator may accelerate payments into the trust fund or the owner or operator may deposit the full amount of the current corrective measures cost estimate at the time the fund is established. The owner or operator shall maintain the value of the fund at no less than the value the fund would have if quarterly payments were made as specified in paragraphs (G)(3) of this rule.

(5) If the owner or operator establishes a corrective measures trust fund after having begun funding corrective measures under any mechanisms specified in this rule, the corrective measures trust fund shall be established by depositing the total value of all prior mechanisms into the newly established trust fund. The subsequent quarterly payments shall be made as specified in paragraph (G)(3) of this rule.

(6) After the pay-in period of a trust fund has ended and the current corrective measures cost estimate changes, the owner or operator shall compare the revised corrective measures cost estimate to 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 revised corrective measures cost estimate, the owner or operator shall, not later than sixty days after the change in the cost estimate, either deposit a sufficient amount into the trust fund so that its value after payment at least equals the amount of the current corrective measures cost estimate, or obtain alternative financial assurance as specified in this rule to compensate for the difference.

(7) The director shall instruct the trustee to release to the owner or operator such funds as the director specifies in writing, after receiving one of the following requests from the owner or operator for a release of funds:

(a) Release of the amount in excess of the current corrective measures cost estimate, if the value of the trust fund is greater than the total amount of the current corrective measures cost estimate.

(b) Release of the amount in the trust fund that exceeds the amount necessary as a result of such substitution, if the owner or operator substitutes any of the alternative financial assurance mechanisms specified in this rule for all or part of the trust fund.

(8) Reimbursement for corrective measures.

After beginning corrective measures, the owner or operator, or any other person authorized by the owner, operator, or director to perform corrective measures, may request reimbursement for corrective measures expenditures by submitting itemized bills to the director. After receiving itemized bills for corrective measures activities, the director shall determine whether the corrective measures expenditures are in accordance with the applicable authorizing document, including permit to install or plan approval, or are otherwise justified, and if so, will instruct the trustee to make reimbursement in such amounts as the director specifies in writing. If the director determines that the cost of corrective measures ~~+~~will be greater than the value of the trust fund, the director may withhold reimbursement of such amounts as the director deems prudent until the director determines, in accordance with paragraph (P) of this rule, that the owner or operator is no longer required to maintain financial assurance for corrective measures.

(9) The director will agree to termination of a trust when one of the following occurs:

(a) The owner or operator substitutes alternative financial assurance for corrective measures as specified in paragraph (G)(6) of this rule.

(b) The director notifies the owner or operator, in accordance with paragraph (P) of this rule, that the owner or operator is no longer required by this rule to maintain financial assurance for corrective measures.

(H) Surety bond guaranteeing payment into a corrective measures trust fund.

(1) The owner or operator may satisfy this rule by obtaining a surety bond that conforms to this paragraph and by delivering the originally signed bond to the director by certified mail or any other form of mail accompanied by a receipt within the time period outlined in paragraph (B) of this rule and by submitting a copy of the bond into the operating record in accordance with rule 3745-27-09 of the Administrative Code. The surety company issuing the bond shall at a minimum be among those listed as acceptable sureties on federal bonds in the most recent listing of approved sureties as published by 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

3745-27-17 of the Administrative Code on forms prescribed by the director.

(3) The owner or operator who uses a surety bond to satisfy this rule shall also establish a standby trust fund not later than when the bond is obtained. Under the terms of the surety 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 paragraph (G) of this rule, except as follows:

(a) An originally signed duplicate of the trust agreement shall be delivered to the director with the surety bond and placed in the operating record in accordance with rule 3745-27-09 of the Administrative Code.

(b) Until the standby trust fund is funded, pursuant to this rule, the following are not required:

(i) Payments into the trust fund as specified in paragraph (G) of this rule.

(ii) Revisions of "Schedule A" of the trust agreement to show the current corrective measures cost estimate.

(iii) Annual valuations as specified in the trust agreement.

(iv) Notices of nonpayment as specified in the trust agreement.

(4) The bond shall guarantee that the surety will become liable on the bond obligation unless the owner or operator does one of the following, as applicable:

(a) Funds the standby trust fund in an amount equal to the penal sum of the bond before the beginning of the corrective measures period.

(b) Funds the standby trust fund in an amount equal to the penal sum of the bond not later than fifteen days after corrective measures are triggered pursuant to rule 3745-27-10 of the Administrative Code.

(c) Provides alternative financial assurance as specified in this rule, and obtain the director's written approval of the alternative financial assurance provided, not later than ninety days after both the owner or operator and the director receive notice of cancellation of the bond from the surety.

(5) Under the terms of the bond, the surety shall 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 corrective measures cost estimate except as provided in paragraph (N) of this rule.

(7) Whenever the current corrective measures cost estimate increases to an amount greater than the penal sum of the bond, the owner or operator shall, not later than sixty days after the increase in the corrective measures cost estimate, either cause the penal sum of the bond to be increased to an amount at least equal to the current corrective measures cost estimate and submit evidence of such increase to the director, and into the operating record in accordance with rule 3745-27-09 of the Administrative Code, or obtain alternative financial assurance as specified in this rule to compensate for the increase. Whenever the current corrective measures cost estimate decreases, the penal sum may be reduced to the amount of the current corrective measures cost estimate following written approval by the director. Notice of an increase or a proposed decrease in the penal sum shall be sent to the director not later than

sixty days after the change.

(8) Under the terms of the bond, the bond shall remain in force unless the surety sends written notice of cancellation by certified mail or any other form of mail accompanied by a receipt to the owner or operator and to the director. Cancellation cannot occur, however, during the one hundred twenty day period beginning on the first day that both the owner or operator and the director have received the notice of cancellation, as evidenced by the return receipts.

(9) The owner or operator may cancel the bond if the director has given prior written consent. The director will provide such written consent to the surety bond company when one of the following occurs:

(a) The owner or operator substitutes alternative financial assurance for corrective measures as specified in this rule.

(b) The director notifies the owner or operator in accordance with paragraph (P) of this rule that the owner or operator is no longer required to maintain financial assurance for corrective measures.

(I) Surety bond guaranteeing performance of corrective measures.

(1) The owner or operator may satisfy this rule by obtaining a surety bond that conforms to this paragraph and by delivering the originally signed bond to the director within the time period outlined in paragraph (B) of this rule and by submitting a copy of the surety bond into the operating record in accordance with rule 3745-27-09 of the Administrative Code. The surety company issuing the bond shall at a minimum be among those listed as acceptable sureties on federal bonds in the most recent listing of approved sureties as published by the U.S. department of the treasury.

(2) The wording of the surety bond shall be identical to the wording specified in paragraph (C) of rule 3745-27-17 of the Administrative Code on forms prescribed by the director.

(3) The owner or operator who uses a surety bond to satisfy this rule shall also establish a standby trust fund. Under the terms of the surety 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 (G) of this rule except as follows:

(a) An originally signed duplicate of the trust agreement shall be delivered to the director with the surety bond and placed in the operating record in accordance with rule 3745-27-09 of the Administrative Code.

(b) Unless the standby trust fund is funded pursuant to this rule, the following are not required:

(i) Payments into the trust fund as specified in paragraph (G) of this rule.

(ii) Revisions of "Schedule A" of the trust agreement to show the current corrective measures cost estimate.

(iii) Annual valuations as specified in the trust agreement.

(iv) Notices of nonpayment as specified in the trust agreement.

(4) The bond shall guarantee that the surety will become liable on the bond obligation unless the owner or operator does one of the following, as applicable:

(a) Performs corrective measures in accordance with the applicable authorizing document, including the permit to install or plan approval.

(b) Provides alternative financial assurance as specified in this rule, and obtains the director's written approval of the alternative financial assurance provided, not later than ninety days after both the owner or operator and the director receive 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. Following a determination by the director that the owner or operator has failed to perform corrective measures activities in accordance with the applicable authorizing document, including the permit to install or plan approval, the surety shall perform corrective measures in accordance with the applicable authorizing document, including the permit to install or plan approval, or will deposit the amount of the penal sum into the standby trust fund.

(6) The penal sum of the bond shall be in an amount at least equal to the current corrective measures cost estimate.

(7) Whenever the current corrective measures cost estimate increases to an amount greater than the penal sum of the bond, the owner or operator shall, not later than sixty days after the increase in the estimate, either cause the penal sum of the bond to be increased to an amount at least equal to the current corrective measures cost estimate and submit evidence of such increase to the director, and into the operating record in accordance with rule 3745-27-09 of the Administrative Code, or obtain alternative financial assurance, as specified in this rule, to compensate for the increase. Whenever the current corrective measures cost estimate decreases, the penal sum may be reduced to the amount of the current corrective measures cost estimate following written approval by the director. Notice of an increase or a proposed decrease in the penal sum shall be sent to the director by certified mail or any other form of mail accompanied by a receipt not later than sixty days after the change.

(8) Under the terms of the bond, the bond shall remain in force unless the surety sends written notice of cancellation by certified mail or any other form of mail accompanied by a receipt to the owner or operator and to the director. Cancellation cannot occur, however, during the one hundred twenty day period beginning on the first day that both the owner or operator and the director have received the notice of cancellation, as evidenced by the return receipts.

(9) The owner or operator may cancel the bond if the director has given prior written consent. The director will provide such written consent to the surety bond company when one of the following occurs:

(a) The owner or operator substitutes alternative financial assurance for corrective measures as specified in this rule.

(b) The director notifies the owner or operator, in accordance with paragraph (P) of this rule that the owner or operator is no longer required by this rule to maintain financial assurance for corrective measures.

(10) The surety shall not be liable for deficiencies in the completion of corrective measures activities by the owner or operator after the owner or operator has been notified by the director, in accordance with this rule, that the owner or operator is no longer required to maintain financial assurance for corrective measures.

(J) Corrective measures letter of credit.

(1) The owner or operator may satisfy this rule by obtaining an irrevocable standby letter of credit ("letter of credit") that conforms to this paragraph and by having the originally signed letter of credit delivered to the director by certified mail or any other form of mail accompanied by a receipt within the time period outlined in paragraph (B) of this rule and by submitting a copy of the letter of credit into the operating record in accordance with rule 3745-27-09 of the Administrative Code. 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 (D) of rule 3745-27-17 of the Administrative Code on forms prescribed by the director.

(3) An owner or operator who uses a letter of credit to satisfy 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 shall be deposited promptly and directly by the issuing institution into the standby trust fund in accordance with instructions from the director. The standby trust fund shall meet the requirements of the trust fund specified in paragraph (G) of this rule, except as follows:

(a) An originally signed duplicate of the trust agreement shall be delivered to the director with the letter of credit, and a copy of the letter placed in the operating record in accordance with rule 3745-27-09 of the Administrative Code.

(b) Unless the standby trust fund is funded pursuant to this rule, the following are not required:

(i) Payments into the trust fund as specified in paragraph (G) of this rule.

(ii) Updating of "Schedule A" of the trust agreement to show the current corrective measures cost estimate.

(iii) Annual valuations as specified in the trust agreement.

(iv) Notices of nonpayment as specified in 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 following information: the names and addresses of the solid waste landfill and the owner and the operator and the amount of funds assured for corrective measures 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, not later than one hundred twenty days prior to the current expiration date, the issuing institution notifies both the owner and operator and the director by certified mail or any other form of mail accompanied by a receipt of a decision not to extend the expiration date. Under the terms of the letter of credit, the one hundred twenty day period shall begin on the day 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 corrective measures cost estimate, except as provided in paragraph (N) of this rule.

(7) Whenever the current corrective measures cost estimate increases to an amount greater than the amount of the credit, the owner or operator shall, not later than sixty days after this increase, either cause the amount of the credit to be increased to an amount at least equal to the current corrective measures cost estimate and submit evidence of such increase to the director, and into the operating record in accordance with rule 3745-27-09 of the Administrative Code, or obtain alternative financial assurance, as specified in this rule, to compensate for the increase. Whenever the current corrective measures cost estimate decreases, the letter of credit may be reduced to the amount of the current corrective measures cost estimate following written approval by the director. Notice of an increase or a proposed decrease in the amount of the letter of credit shall be sent to the director by certified mail or any other form of mail accompanied by a receipt not later than sixty days after the change.

(8) Under the terms of the letter of credit, the director may draw on the letter of credit following a determination that the owner or operator has failed to do the following:

(a) Perform corrective measures activities in accordance with the applicable authorizing document, including the permit to install or plan approval.

(b) Provide alternative financial assurance as specified in this rule and obtain written approval of such alternative financial assurance from the director not later than ninety days after the owner and operator and the director have received notice from the issuing institution that it will not extend the letter of credit beyond the current expiration date, the director shall 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 final thirty days of any such extension the director shall draw on the letter of credit if the owner or operator has failed to provide alternative financial assurance as specified in this rule and has failed to obtain written approval of such alternative financial assurance from the director.

(9) The director shall return the original letter of credit to the issuing institution for termination when either of the following occurs:

(a) The owner or operator substitutes alternative financial assurance for corrective measures as specified in this rule.

(b) The director notifies the owner or operator, in accordance with paragraph (P) of this rule, that the owner or operator is no longer required to maintain financial assurance for corrective measures.

(K) Corrective measures insurance.

(1) The owner or operator may satisfy this rule by obtaining corrective measures insurance that conforms to this paragraph and by submitting a originally signed certificate of such insurance to the director by certified mail or any other form of mail accompanied by a receipt within the time period outlined in paragraph (B) of this rule, and by submitting a copy of the certificate of insurance into the operating record in accordance with rule 3745-27-09 of the Administrative Code. 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 (E) of rule 3745-27-17 of the Administrative Code on forms described by the director.

(3) The corrective measures insurance policy shall be issued for a face amount at least equal to the current corrective measures cost estimate except as provided in paragraph (N) of this rule. 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 corrective measures insurance policy shall guarantee that funds will be available to perform corrective measures whenever mandated. The policy shall also guarantee that once corrective measures begins, 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) Reimbursement for corrective measures.

After beginning corrective measures, the owner or operator, or any other person authorized by the owner, operator, or director to perform corrective measures, may request reimbursement for corrective measures expenditures by submitting itemized bills to the director. After receiving itemized bills for corrective measures activities, the director shall determine whether the corrective measures expenditures are in accordance with the applicable authorizing document, including the permit to install or plan approval, and if so, shall instruct the insurer to make reimbursement in such amounts as the director specifies in writing. If the director has reason to believe that the cost of corrective measures will be 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 (P) of this rule, that the owner or operator is no longer required to maintain financial assurance for corrective measures.

(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 (K)(8) of this rule. Failure to pay the premium, without substitution of alternative financial assurance as specified in this rule, will constitute a violation of these rules, warranting such remedy as the director deems necessary. Such violation shall 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 or any other form of mail accompanied by a receipt to the owner or operator and to the director. Cancellation, termination, or failure to renew may not occur, and the policy will remain in full force and effect unless one of the following occurs on or before the date of expiration:

(a) Corrective measures activities specified in the applicable authorizing document, including permit to install or plan approval have occurred.

(b) The owner or operator is named as debtor in a voluntary or involuntary proceeding under title 11

(bankruptcy), U.S. Code.

(c) The premium due is paid.

(9) Whenever the current corrective measures cost estimate increases to an amount greater than the face amount of the policy, the owner or operator shall, not later than sixty days after the increase, either cause the face amount to be increased to an amount at least equal to the current corrective measures cost estimate and submit evidence of such increase to the director, and into the operating record in accordance with rule 3745-27-09 of the Administrative Code, or obtain alternative financial assurance as specified in this rule to compensate for the increase. Whenever the current corrective measures cost estimate decreases, the face amount may be reduced to the amount of the current corrective measures cost estimate following written approval by the director.

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

(a) The owner or operator substitutes alternative financial assurance for corrective measures as specified in this rule.

(b) The director notifies the owner or operator, in accordance with paragraph (P) of this rule that owner or operator is no longer required to maintain financial assurance for corrective measures.

(L) Financial test and corporate guarantee for corrective measures.

(1) The owner or operator may satisfy 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 demonstrate that less than fifty per cent of the parent corporation's gross revenues are derived from solid waste disposal, solid waste transfer facility operations, or scrap tire transporter operations, or if there is no parent corporation, the owner or operator shall demonstrate that less than fifty per cent of its gross revenues are derived from solid waste facility, solid waste transfer facility, or scrap tire transporter operations and satisfy either of the following:

(a) The owner or operator shall have the following:

(i) Satisfaction of at least two of the following 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 minus ten million dollars to total liabilities greater than 0.1; a ratio of current assets to current liabilities greater than 1.5.

(ii) Net working capital and tangible net worth each at least six times the sum of the current final closure and current post-closure care cost estimates, scrap tire transporter final closure cost estimates, any corrective measures cost estimates, and any other obligations assured by a financial test.

(iii) Tangible net worth of at least ten million dollars.

(iv) Assets in the United States amounting to at least ninety per cent of total assets or at least six times the sum of the current final and current post-closure care cost estimates, scrap tire transporter final closure cost estimates, any current corrective measures cost estimates, and any other obligations assured by a financial test.

(b) The owner or operator shall have the following:

(i) Issued a corporate bond for which the owner or operator, as the issuing entity, has not received a current rating of less than BBB as issued by "Standard and Poor's" or Baa as issued by "Moody's." Owner and operators using bonds that are secured by collateral or a guarantee shall meet the minimum rating without that security.

(ii) Tangible net worth at least six times the sum of the current final and current post-closure care cost estimates, scrap tire transporter final closure cost estimates, any corrective measures cost estimates, and any other obligations assured by a financial test.

(iii) Tangible net worth of at least ten million dollars.

(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 final closure and current post-closure care cost estimates, scrap tire transporter final closure cost estimates, any current corrective measures cost estimates, and any other obligations assured by a financial test.

(2) Current final closure and current post-closure care cost estimates, scrap tire transporter final closure cost estimates, current corrective measures cost estimates, and any other obligations assured by a financial test as used in paragraph (L)(1) of this rule refers to the cost estimates to be shown in the letter from the owner's or operator's chief financial officer.

(3) To demonstrate that requirements of this test are met, the owner or operator shall submit the following items to the director, and into the operating record in accordance with rule 3745-27-09 of the Administrative Code:

(a) A letter signed by the owner's or operator's chief financial officer and worded as specified in paragraph (F) of rule 3745-27-17 of the Administrative Code on forms prescribed by the director.

(b) A copy of a report by an independent certified public accountant examining the owner's or the operator's financial statements for the most recently completed fiscal year.

(c) A special report from the owner's or the operator's independent certified public accountant, in the form of an agreed-upon procedures report, to the owner or operator stating the following:

(i) The independent certified public accountant has compared the data that the letter from the chief financial officer specifies as having been derived from the independently audited year-end financial statements for the most recent fiscal year with the amounts in such financial statements.

(ii) In connection with the agreed-upon procedures report, the independent certified public accountant states that the independent certified public accountant agrees the specified data is accurate.

(4) After the initial submission of the items specified in paragraph (L)(3) of this rule, the owner or operator shall send updated information to the director, and submit updated information into the operating record in accordance with rule 3745-27-09 of the Administrative Code, not later than ninety days after the close of each succeeding fiscal year. This information shall include all three items specified in paragraph (L)(3) of this rule.

(5) If the owner or operator no longer meets paragraph (L)(1) of this rule, the owner or operator shall send a

notice to the director of the intent to establish alternative financial assurance as specified in this rule by certified mail or any other form of mail accompanied by a receipt not later than 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 of paragraph (L)(1) of this rule. The owner or operator shall also place a copy of the notice in the operating record. The owner or operator shall provide alternative financial assurance not later than one hundred twenty days after the end of such fiscal year.

(6) The director may, based on a reasonable belief that the owner or operator no longer meets paragraph (L)(1) of this rule, require reports of financial condition at any time from the owner or operator in addition to those specified in paragraph (L)(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 paragraph (L)(1) of this rule, the owner or operator shall provide alternative financial assurance as specified in this rule not later than thirty days after notification of such a finding.

(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 the independent certified public accountant's report on examination of the owner's or operator's financial statements. An adverse opinion or disclaimer of opinion will be cause for disallowance. The director shall evaluate other qualifications on an individual basis. The owner or operator shall provide alternative financial assurance as specified in this rule not later than thirty days after notification of the disallowance.

(8) During the period of corrective measures, the director may approve in writing a decrease in the current corrective measures cost estimate, if the owner or operator demonstrates, to the satisfaction of the director, that the amount of the corrective measures cost estimate exceeds the cost of the remaining corrective measures activities. Whenever the current corrective measures cost estimate decreases, the amount listed on the chief financial officer's letter may be reduced to the amount of the current corrective measures cost estimate following written approval by the director.

(9) The owner or operator is no longer required to submit the items specified in paragraph (L)(3) of this rule when either of the following occur:

(a) The owner or operator substitutes alternative financial assurance for corrective measures as specified in this rule.

(b) The director notifies the owner or operator, in accordance with paragraph (P) of this rule that the owner or operator is no longer required to maintain financial assurance for corrective measures.

(10) The owner or operator may meet this rule by obtaining a written guarantee, hereafter referred to as a corporate guarantee. The guarantor shall be a parent corporation of the owner or operator. The guarantor shall meet the requirements for an owner or operator in paragraphs (L)(1) to (L)(7) of this rule and comply with the terms of the corporate guarantee. The wording of the corporate guarantee shall be identical to the wording specified in paragraph (G) of rule 3745-27-17 of the Administrative Code on forms prescribed by the director. The corporate guarantee shall accompany the items sent to the director as specified in paragraph (L)(3) of this rule. The terms of the corporate guarantee shall provide the following:

(a) The owner or operator perform corrective measures provided for by the corporate guarantee in

accordance with the applicable authorizing document, including permit to install or plan approval.

(b) The guarantor perform the activities specified in paragraph (L)(10)(a) of this rule or establish a trust fund in the name of the owner or operator as specified in paragraph (G) of this rule if the owner or operator fails to perform those activities.

(c) The corporate guarantee remains in force unless the guarantor sends notice of cancellation by certified mail or any other form of mail accompanied by a receipt to the owner or operator and to the director. Cancellation may not occur, however, during the one hundred twenty day period beginning on the first day that both the owner or operator and the director have received notice of cancellation, as evidenced by the return receipts.

(d) If the owner or operator fails to provide alternative financial assurance as specified in this rule, and fails to obtain the written approval of such alternative financial assurance from the director not later than ninety days after both the owner or operator and the director have received notice of cancellation of the corporate guarantee from the guarantor, the guarantor shall provide such alternative financial assurance in the name of the owner or operator.

(M) Local government financial test for corrective measures.

(1) For the purposes of this rule, local government means a subdivision of the state of Ohio including but not limited to a municipal corporation, a county, a township, a single or joint county solid waste management district, or a solid waste management authority.

(2) A local government may satisfy this rule by demonstrating that the local government passes a financial test as specified in this paragraph. This test consists of a financial component, a public notice component, and a record-keeping and reporting component. In order to satisfy the financial component of the test, a local government shall meet the following criteria:

(a) A local government's financial statements are prepared in accordance with "Generally Accepted Accounting Principles" for local governments.

(b) A local government has not operated at a deficit equal to five per cent or more of total annual revenue in either of the past two fiscal years.

(c) A local government is not currently be in default on any outstanding general obligation bonds.

(d) A local government does not have any outstanding general obligation bonds rated lower than BBB as issued by "Standard and Poor's" or Baa as issued by "Moody's." Local governments using bonds that are secured by collateral or a guarantee shall meet the minimum rating without that security.

(3) In addition to satisfying the financial component of the test, a local government shall meet either of the following:

(a) The local government shall have the following:

(i) A ratio of cash plus marketable securities to total expenditures greater than or equal to 0.05.

(ii) A ratio of annual debt service to total expenditures less than or equal to 0.20.

(iii) A ratio of long term debt issued and outstanding to capital expenditures less than or equal to 2.00.

(iv) A ratio of the current cost estimates for final closure, post-closure care, corrective measures, scrap tire transporter final closure, and any other obligations assured by a financial test, to total revenue less than or equal to 0.43.

(b) The local government shall have the following:

(i) Outstanding general obligation bonds for which the local government, as the issuing entity, has not received a current rating of less than BBB as issued by "Standard and Poor's" or Baa as issued by "Moody's". Local governments using bonds that are secured by collateral or a guarantee shall meet the minimum rating without that security.

(ii) A ratio of the current cost estimates for final closure, post-closure care, corrective measures, scrap tire transporter final closure, and any other obligations assured by a financial test, to total revenue less than or equal to 0.43.

(4) In order to satisfy the public notice component of the test, a local government shall in each year that the test is used, identify the current cost estimates in either its budget or its comprehensive annual financial report. The solid waste landfill covered, the categories of expenditures, including final closure, post-closure care, corrective measures, scrap tire transporter final closure, the corresponding cost estimate for each expenditure, and the anticipated year of the specified activity shall be recorded. If the financial assurance obligation is to be included in the budget, it should either be listed as an approved budgeted line item, if the obligation will arise during the budget period, or in an appropriate supplementary data section, if the obligation will not arise during the budget period. If the information is to be included in the comprehensive annual financial report, it is to be included in the financial section as a footnote to the annual financial statements.

(5) To demonstrate that a local government meets the requirements of this test, the following three items shall be submitted to the director, and into the operating record in accordance with rule 3745-27-09 of the Administrative Code:

(a) A letter signed by the local government's chief financial officer and worded as specified in paragraph (H) of rule 3745-27-17 of the Administrative Code on forms prescribed by the director as follows:

(i) Lists all the current cost estimates covered by a financial test.

(ii) Certifies that the local government meets the conditions of paragraph (M)(1) of this rule.

(iii) Provides evidence and certifies that the local government meets the conditions of either paragraph (M)(2)(a) or (M)(2)(b) of this rule.

(b) A copy of the local government's independently audited year-end financial statements for the latest fiscal year, including the unqualified opinion of the auditor. The auditor shall be an independent, certified public accountant or auditor of state.

(c) A special report from the independent certified public accountant or auditor of state, in the form of an agreed-upon procedures report, to the local government stating the following:

(i) The independent certified public accountant or auditor of state has compared the data that the letter from the chief financial officer specifies as having been derived from the independently audited year-end financial statements for the most recent fiscal year with the amounts in such financial statements.

(ii) In connection with the agreed-upon procedures report, the independent certified public account or auditor of the state states that the independent certified public account or auditor of the state agrees the specified data is accurate.

(6) After the initial submission of the items specified in this rule, a local government shall send updated information to the director on forms prescribed by the director, and submit updated information into the operating record in accordance with rule 3745-27-09 of the Administrative Code, not later than one hundred eighty days after the close of each succeeding fiscal year. This information shall include all items specified in this rule.

(7) If a local government no longer meets this rule, the local government shall send a notice to the director of the intent to establish alternative financial assurance as specified in this rule by certified mail or any other form of mail accompanied by a receipt not later than one hundred fifty days after the end of the fiscal year for which the year-end financial data show that the local government no longer meets the requirements. The local government shall also place a copy of the notice in the operating record. The local government shall provide alternative financial assurance not later than one hundred eighty days after the end of such fiscal year.

(8) The director may, based on a reasonable belief that the local government no longer meets this rule, require reports of financial condition at any time from the local government in addition to those specified in this rule. If the director finds, on the basis of such reports or other information, that the local government no longer meets the requirements of this rule, the local government shall provide alternative financial assurance as specified in this rule not later than thirty days after notification of such a finding.

(9) The director may disallow use of this test on the basis of qualifications in the opinion expressed by the independent certified public accountant or auditor of state in the report on examination of the local government's financial statements. An adverse opinion or disclaimer of opinion will be cause for disallowance. The director shall evaluate other qualifications on an individual basis. The local government shall provide alternative financial assurance as specified in this rule not later than thirty days after notification of the disallowance.

(10) The local government is no longer required to submit the items specified in this rule when one of the following occur:

(a) The local government substitutes alternative financial assurance for corrective measures as specified in this rule.

(b) The director notifies the local government, in accordance with paragraph (P) of this rule, that the local government is no longer required to maintain financial assurance for corrective measures of the facility.

(N) Use of multiple financial assurance mechanisms.

The owner or operator may satisfy this rule by establishing more than one financial assurance mechanism for

the solid waste landfill. These mechanisms are limited to a trust fund, surety bond guaranteeing payment into a corrective measures trust fund, letter of credit, insurance, and the local government financial test. The mechanisms shall be as specified in paragraphs (G), (H), (J), (K), and (M) respectively of this rule, except that it is the combination of mechanisms, rather than each single mechanism, that provides financial assurance for an amount at least equal to the current corrective measures cost estimate. If an owner or operator uses a trust fund in combination with a surety bond or a letter of credit, 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 invoke use of any or all of the mechanisms, in accordance with paragraphs (G), (H), (J), (K), and (M) of this rule, to provide for corrective measures.

(O) Use of a financial mechanism for multiple facilities.

The owner or operator may use a financial assurance mechanism specified in this rule to meet the financial assurance obligations for more than one solid waste landfill. Evidence of financial assurance submitted to the director shall include a list showing, for each solid waste landfill, the name, address, and the amount of funds for corrective measures assured by the financial assurance mechanism. The amount of funds available through the financial assurance mechanism shall be no less than the sum of the funds that would be available if a separate financial assurance mechanism had been established and maintained for each solid waste landfill.

(P) Release of the owner or operator of a solid waste facility from the requirements of this rule. The director shall notify the owner or operator in writing that the owner or operator is no longer required~~,~~ by this rule~~,~~ to maintain financial assurance for corrective measures at the solid waste landfill, unless the director has reason to believe that corrective measures have not been completed in accordance with the requirements of the applicable authorizing document, including permit to install or plan approval.

Effective:	11/7/2024
Five Year Review (FYR) Dates:	8/14/2024 and 11/07/2029

CERTIFIED ELECTRONICALLY

Certification

10/22/2024

Date

Promulgated Under:	119.03
Statutory Authority:	3734.02
Rule Amplifies:	3734.02, 3734.12, 3734.71, 3734.72, 3734.73, 3734.74
Prior Effective Dates:	06/01/1994, 08/31/1997, 09/01/2002, 01/01/2017

3745-27-19 Operational criteria for a sanitary landfill facility.

(A) Any reference to this rule in rule 3745-27-06 of the Administrative Code shall be construed as follows:

(1) The reference in paragraph (B)(3)(h) of rule 3745-27-06 of the Administrative Code as a reference to rule 3745-535-650 of the Administrative Code.

(2) The reference in paragraph (C)(2) of rule 3745-27-06 of the Administrative Code as a reference to Chapter 3745-535 of the Administrative Code.

(B) Any reference to this rule in rule 3745-27-07 of the Administrative Code shall be construed as a reference to rule 3745-535-500 of the Administrative Code.

(C) Any reference to this rule in rule 3745-27-08 of the Administrative Code shall be construed as follows:

(1) The reference in paragraph (A) of rule 3745-27-08 as a reference to Chapter 3745-512 of the Administrative Code.

(2) The reference in the comment immediately following paragraph (D) of rule 3745-27-08 of the Administrative Code as a reference to rules 3745-535-500 or 3745-535-630 of the Administrative Code or Chapter 3745-512 of the Administrative Code, as appropriate.

(3) The reference in paragraph (D)(19) of rule 3745-27-08 of the Administrative Code as a reference to rule 3745-535-630 of the Administrative Code.

(4) The reference in paragraph (H) of rule 3745-27-08 of the Administrative Code as a reference to rules 3745-535-500 or 3745-535-630 of the Administrative Code or Chapter 3745-512 of the Administrative Code, as appropriate.

(5) The reference in the comment immediately following paragraph (H)(2)(b) of rule 3745-27-08 of the Administrative Code as a reference to rule 3745-535-610 of the Administrative Code.

(6) The reference in the comment immediately following paragraph (H)(3) of rule 3745-27-08 of the Administrative Code as a reference to rule 3745-512-55 of the Administrative Code.

(D) Any reference to this rule in rule 3745-27-09 of the Administrative Code shall be construed as follows:

(1) The reference in paragraph (H)(2)(a) or (H)(7) of rule 3745-27-09 of the Administrative Code as a reference to rule 3745-535-620 of the Administrative Code.

(2) The reference in paragraph (H)(2)(g) of rule 3745-27-09 of the Administrative Code as a reference to rule 3745-535-650 of the Administrative Code.

(3) The reference in paragraph (H)(6) of rule 3745-27-09 of the Administrative Code as a reference to rule 3745-535-660 of the Administrative Code.

(4) The reference in the comment in rule 3745-27-09 of the Administrative Code as a reference to rules 3745-535-500, 3745-535-620, 3745-535-650, and 3745-535-670 of the Administrative Code.

(E) Any reference to this rule in rule 3745-27-10 of the Administrative Code shall be construed as a reference to Chapter 3745-535 of the Administrative Code.

(F) Any reference to this rule in rule 3745-27-11 of the Administrative Code shall be construed as a reference to Chapter 3745-535 of the Administrative Code.

(G) Any reference to this rule in rule 3745-27-12 of the Administrative Code shall be construed as a reference to rule 3745-535-670 of the Administrative Code.

(H) Any reference to this rule in rule 3745-27-14 of the Administrative Code shall be construed as a reference to rule 3745-535-650 of the Administrative Code.

(I) Any reference to this rule in rule 3745-27-20 of the Administrative Code is no longer applicable.

(J) Any reference to this rule in rule 3745-27-90 of the Administrative Code shall be construed as a reference to rule 3745-535-630 of the Administrative Code.

Replaces:	3745-27-19
Effective:	6/15/2024
Five Year Review (FYR) Dates:	06/15/2029

CERTIFIED ELECTRONICALLY

Certification

02/22/2024

Date

Promulgated Under:	119.03
Statutory Authority:	3734.02, 3734.12
Rule Amplifies:	3734.02, 3734.021, 3734.027, 3734.05, 3734.12
Prior Effective Dates:	07/29/1976, 03/01/1990, 06/01/1994, 02/01/1995, 03/01/1996, 08/15/2003, 07/01/2004, 11/01/2007, 01/01/2017

3745-27-20 Prohibitions and closure.

(A) Prohibitions.

(1) After June 1, 1994, no owner or operator shall place municipal solid waste in any unfilled areas of an existing unit of a sanitary landfill facility unless the unfilled areas are at a minimum provided with an interim composite liner/leachate collection system in accordance with paragraph (B) of rule 3745-27-08 of the Administrative Code. The owner or operator shall place a copy of the design for the interim composite liner/leachate collection system into the operating record in accordance with rule 3745-27-09 of the Administrative Code.

[Comment: Paragraph (C) of rule 3745-27-19 of the Administrative Code, requires strict compliance with the applicable authorizing documents and specifies the circumstances in which the "interim composite liner/leachate collection system" may be used in lieu of the system approved in the applicable authorizing documents.

(2) After June 1, 1994, no owner or operator shall place municipal solid waste in any new unit of sanitary landfill that is not at a minimum provided with an interim composite liner/leachate collection system in accordance with paragraph (B) of rule 3745-27-08 of the Administrative Code. The owner or operator shall place a copy of the design for the interim composite liner/leachate collection system into the operating record in accordance with rule 3745-27-09 of the Administrative Code.

[Comment: Paragraph (C) of rule 3745-27-19 of the Administrative Code, requires strict compliance with the applicable authorizing documents and specifies the circumstances in which the "interim composite liner/leachate collection system" may be used in lieu of the system approved in the applicable authorizing documents.

(3) After June 1, 1994, no owner or operator shall place municipal solid waste in any new units unless the owner or operator has demonstrated compliance with all of the following location restrictions and placed a copy of the demonstration into the operating record of the sanitary landfill facility in accordance with rule 3745-27-09 of the Administrative Code:

(a) Paragraph (C)(1) of this rule (airports).

(b) Paragraph (C)(2) of this rule (floodplains).

(c) Paragraph (C)(3) of this rule (fault areas).

(d) Paragraph (C)(4) of this rule (seismic impact zone).

(e) Paragraph (C)(5) of this rule (unstable areas).

(4) After June 1, 1994, no owner or operator shall construct or operate new units or unfilled areas of an existing unit of a sanitary landfill facility such that the construction or operation occurs in a wetland, unless the owner or operator has obtained any necessary permits and approvals required pursuant to sections 401 or 404 of the Clean Water Act (July 11, 2006) (33 United States Code section 1341 and 1344). The "Clean Water Act" can be found at https://www.gpo.gov/fdsys/browse/collectionUScode.action?collectionCode= USCODE.

(B) Existing unit closure for failure to demonstrate compliance with location restrictions.

(1) The owner or operator of an existing unit of sanitary landfill facility must complete closure activities pursuant to rule 3745-27-11 of the Administrative Code by October 9, 1996, if the owner or operator cannot demonstrate compliance with all of the following location restrictions:

(a) Paragraph (C)(1) of this rule (airports).

(b) Paragraph (C)(2) of this rule (floodplains).

(c) Paragraph (C)(5) of this rule (unstable areas).

The owner or operator shall place a copy of the demonstrations into the operating record in accordance with rule 3745-27-09 of the Administrative Code.

(2) The director may extend the deadline for closure for up to two years if the owner or operator of the existing unit demonstrates both of the following:

(a) There is no available regional disposal capacity and closure of the sanitary landfill would cause a local disposal capacity crisis.

(b) There is no immediate threat to human health and the environment. In determining whether there is a threat to human health and the environment from the continued operation of the existing unit the director may consider but is not limited to the following:

(i) The impact of the existing unit on ground water including the results and status of detection monitoring, assessment monitoring, or corrective measures programs.

(ii) Operations at the existing unit including compliance with daily, intermediate, and final cover requirements and leachate management.

(C) Location restriction demonstrations.

(1) The limits of solid waste placement of the sanitary landfill facility are not located within ten thousand feet (three thousand forty-eight meters) of any airport runway end used by turbojet aircraft or within five thousand feet (one thousand five hundred twenty-four meters) of any airport runway end used by only piston-type aircraft, unless the owner or operator can demonstrate that the sanitary landfill facility will be so designed and operated that the sanitary landfill facility will not pose a bird hazard to aircraft.

(2) The limits of solid waste placement of the sanitary landfill facility are not located in a "regulatory floodplain" unless the owner or operator can demonstrate that the units of the sanitary landfill facility will not restrict the flow of the one hundred year flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste so as to pose a hazard to human health and the environment.

(3) The sanitary landfill facility is not located within two hundred feet of a fault that has had displacement in Holocene time unless the owner or operator can demonstrate that a distance less than two hundred feet will prevent damage to the structural integrity of the sanitary landfill facility and will be protective of human health and the environment. For the purposes of this rule, "fault," "displacement," and "Holocene" have the following meanings:

(a) "Fault" means a fracture along which strata on one side of the fracture have been displaced with respect to strata on the other side of the fracture.

(b) "Displacement" means the relative movement of any two sides of a fault measured in any direction.

(c) "Holocene" means the most recent epoch of the Quaternary period extending from the end of the Pleistocene to the present.

(4) The sanitary landfill facility is not located in a seismic impact zone, unless the owner or operator demonstrates that all containment structures, including liners, leachate collections systems, sedimentation ponds, and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site.

(5) The sanitary landfill facility is not located in an unstable area, unless the owner or operator demonstrates that engineering measures have been incorporated into the design of the sanitary landfill facility to ensure that the integrity of the structural components will not be disrupted; except, that for an area of potential subsidence resulting from underground mining, the demonstration must show that the voids are filled or removed if the sanitary landfill facility is located above an underground mine or within the angle of draw of an underground mine. All of the following factors shall be considered when determining whether an area is unstable:

(a) On-site or local soil type and hydraulic conditions.

(b) On site or local geologic or geomorphologic features.

(c) On site or local human-made features (both surface and subsurface).

(d) On site or local events (both surface and subsurface).

Effective:	01/01/2017
Five Year Review (FYR) Dates:	08/01/2016 and 01/01/2022

CERTIFIED ELECTRONICALLY

Certification

10/13/2016

Date

Promulgated Under:	119.03
Statutory Authority:	3734.02
Rule Amplifies:	3734.02
Prior Effective Dates:	6/01/1994, 3/01/2006

3745-27-32 Standards for the operation of infectious waste treatment facilities.

Any reference to this rule in rule 3745-550-600 of the Administrative Code shall be construed as a reference to Chapter 3745-570 of the Administrative Code.

Replaces:	3745-27-32
Effective:	4/6/2025
Five Year Review (FYR) Dates:	04/06/2030

CERTIFIED ELECTRONICALLY

Certification

02/28/2025

Date

Promulgated Under:	119.03
Statutory Authority:	3734.021
Rule Amplifies:	3734.021
Prior Effective Dates:	05/01/1990, 05/01/1995, 12/25/1998, 03/01/2013

3745-27-37 Infectious waste treatment facility permit to install application.

Any reference to this rule in rule 3745-27-99 of the Administrative Code shall be construed as follows:

(A) The reference in paragraph (B)(1)(a)(i) of rule 3745-27-99 of the Administrative Code as a reference to paragraphs (C)(3) to (C)(5) of rule 3745-570-220 of the Administrative Code.

(B) The reference in paragraph (B)(2)(a)(i) of rule 3745-27-99 of the Administrative Code as a reference to paragraph (D) of rule 3745-570-220 of the Administrative Code.

Replaces:	3745-27-37
Effective:	4/6/2025
Five Year Review (FYR) Dates:	04/06/2030

CERTIFIED ELECTRONICALLY

Certification

02/28/2025

Date

Promulgated Under:	119.03
Statutory Authority:	3734.021
Rule Amplifies:	3734.021
Prior Effective Dates:	05/01/1990, 07/30/1995, 12/25/1998, 07/05/2007, 01/31/2022

3745-27-54 Registration requirements for scrap tire transporters - annual registration certificate.

Any reference to this rule in rule 3745-27-16 of the Administrative Code shall be construed as a reference to Chapter 3745-580 of the Administrative Code.

3745-27-54

Replaces:	3745-27-54
Effective:	6/30/2023
Five Year Review (FYR) Dates:	06/30/2028

CERTIFIED ELECTRONICALLY

Certification

06/16/2023

Date

Promulgated Under:	119.03
Statutory Authority:	3734.02, 3734.74
Rule Amplifies:	3734.74, 3734.83
Prior Effective Dates:	03/01/1996, 03/29/2002, 11/01/2007, 02/20/2015

3745-27-56 Standards for transporters of scrap tires.

(A) Any reference to this rule in rule 3745-27-17 of the Administrative Code shall be construed as a reference to rule 3745-580-110 of the Administrative Code.

(B) Any reference to this rule in rule 3745-27-01 of the Administrative Code shall be construed as a reference to rule 3745-580-110 of the Administrative Code.

3745-27-56

Replaces:	3745-27-56
Effective:	6/30/2023
Five Year Review (FYR) Dates:	06/30/2028

CERTIFIED ELECTRONICALLY

Certification

06/16/2023

Date

Promulgated Under:	119.03
Statutory Authority:	3734.02, 3734.74
Rule Amplifies:	3734.74, 3734.83
Prior Effective Dates:	03/01/1996, 03/29/2002, 11/01/2007

3745-27-60 General storage and handling of scrap tires.

(A) Any reference to this rule in rule 3745-27-01 of the Administrative Code shall be construed as a reference to rule 3745-580-04 or 3745-580-05 of the Administrative Code, as applicable.

(B) Any reference to this rule in rule 3745-27-04 of the Administrative Code shall be construed as a reference to rules 3745-580-600 to 3745-580-726 of the Administrative Code, as applicable.

3745-27-60

Replaces:	3745-27-60
Effective:	6/30/2023
Five Year Review (FYR) Dates:	06/30/2028

CERTIFIED ELECTRONICALLY

Certification

06/16/2023

Date

Promulgated Under:	119.03
Statutory Authority:	3734.02, 3734.03, 3734.70, 3734.71, 3734.73, 3734.83
Rule Amplifies:	3734.70, 3734.71, 3734.73, 3734.74, 3734.86
Prior Effective Dates:	03/29/1996, 03/29/2002, 11/01/2007

3745-27-61 Registration requirements for scrap tire collection, class II scrap tire storage, and class II scrap tire recovery facilities.

(A) Any reference to this rule in paragraph (C)(6) of rule 3745-27-01 of the Administrative Code shall be construed as a reference to rule 3745-580-22 of the Administrative Code.

(B) Any reference to this rule in paragraph (O)(4)(b)(iv) of rule 3745-27-01 of the Administrative Code shall be construed as a reference to rule 3745-580-105, 3745-580-205, 3745-580-305, or 3745-580-405 of the Administrative Code, as applicable.

(C) Any reference to this rule in rule 3745-27-15 of the Administrative Code shall be construed as a reference to rule 3745-580-22 of the Administrative Code.

3745-27-61

Replaces:	3745-27-61
Effective:	6/30/2023
Five Year Review (FYR) Dates:	06/30/2028

CERTIFIED ELECTRONICALLY

Certification

06/16/2023

Date

Promulgated Under:	119.03
Statutory Authority:	3734.02, 3734.70, 3734.71, 3734.73
Rule Amplifies:	3734.70, 3734.71, 3734.73, 3734.75, 3734.76, 3734.78, 3734.79, 3745.11
Prior Effective Dates:	03/01/1996, 03/29/2002, 11/01/2007

3745-27-63 Class I scrap tire storage facility or class I scrap tire recovery facility permit to install application.

(A) Any reference to this rule in rule 3745-27-01 of the Administrative Code shall be construed as a reference to rule 3745-580-22 of the Administrative Code.

(B) Any reference to this rule in rule 3745-27-52 of the Administrative Code shall be construed as a reference to rule 3745-580-301 of the Administrative Code.

(C) Any reference to this rule in rule 3745-27-99 of the Administrative Code shall be construed as a reference to rule 3745-580-301 or 3745-580-401 of the Administrative Code, as applicable.

3745-27-63

Replaces:	3745-27-63
Effective:	6/30/2023
Five Year Review (FYR) Dates:	06/30/2028

CERTIFIED ELECTRONICALLY

Certification

06/16/2023

Date

Promulgated Under:	119.03
Statutory Authority:	3734.02, 3734.71, 3734.73
Rule Amplifies:	3734.71, 3734.73, 3734.76, 3734.78
Prior Effective Dates:	03/01/1996, 03/29/2002, 07/01/2004, 11/01/2007

3745-27-65 Operation of scrap tire collection, storage, and recovery facilities.

(A) Any reference to this rule in rule 3745-27-01 of the Administrative Code shall be construed as a reference to rule 3745-580-210, 3745-580-310, or 3745-580-410 of the Administrative Code, as applicable.

(B) Any reference to this rule in rule 3745-27-52 of the Administrative Code shall be construed as a reference to rule 3745-580-04 of the Administrative Code.

3745-27-65

Replaces:	3745-27-65
Effective:	6/30/2023
Five Year Review (FYR) Dates:	06/30/2028

CERTIFIED ELECTRONICALLY

Certification

06/16/2023

Date

Promulgated Under:	119.03
Statutory Authority:	3734.02, 3734.70, 3734.71, 3734.73
Rule Amplifies:	3734.70, 3734.71, 3734.73, 3734.75, 3734.76, 3734.78
Prior Effective Dates:	03/01/1996, 03/29/2002, 11/01/2007

3745-27-66 Closure of scrap tire collection, storage, or recovery facilities.

(A) Any reference to this rule in rule 3745-27-01 of the Administrative Code shall be construed as a reference to rule 3745-580-22 of the Administrative Code.

(B) Any reference to this rule in rule 3745-27-15 of the Administrative Code shall be construed as a reference to rule 3745-580-325 or 3745-580-425 of the Administrative Code, as applicable.

(C) Any reference to this rule in rule 3745-27-17 of the Administrative Code shall be construed as a reference to rule 3745-580-325 or 3745-580-425 of the Administrative Code, as applicable.

3745-27-66

Replaces:	3745-27-66
Effective:	6/30/2023
Five Year Review (FYR) Dates:	06/30/2028

CERTIFIED ELECTRONICALLY

Certification

06/16/2023

Date

Promulgated Under:	119.03
Statutory Authority:	3734.02, 3734.70, 3734.71, 3734.73
Rule Amplifies:	3734.70, 3734.71, 3734.73, 3734.75, 3734.76, 3734.78
Prior Effective Dates:	03/01/1996, 03/29/2002, 11/01/2007

3745-27-70 Scrap tire monofill facility permit to install application.

Any reference to this rule in rule 3745-27-99 of the Administrative Code shall be construed as a reference to rule 3745-580-701 of the Administrative Code.

3745-27-70

Replaces:	3745-27-70
Effective:	6/30/2023
Five Year Review (FYR) Dates:	06/30/2028

CERTIFIED ELECTRONICALLY

Certification

06/16/2023

Date

Promulgated Under:	119.03
Statutory Authority:	3734.02, 3734.72
Rule Amplifies:	3734.72, 3734.77
Prior Effective Dates:	03/01/1996, 08/15/2003, 07/01/2004

3745-27-72 Scrap tire monofill facility construction.

Any reference to this rule in rule 3745-27-99 of the Administrative Code shall be construed as a reference to rule 3745-580-705 of the Administrative Code.

3745-27-72

Replaces:	3745-27-72
Effective:	6/30/2023
Five Year Review (FYR) Dates:	06/30/2028

CERTIFIED ELECTRONICALLY

Certification

06/16/2023

Date

Promulgated Under:	119.03
Statutory Authority:	3734.02, 3734.12, 3734.72
Rule Amplifies:	3734.02, 3734.12, 3734.72, 3734.77
Prior Effective Dates:	03/01/1996, 08/15/2003

3745-27-73 Final closure of a scrap tire monofill facility.

(A) Any reference to this rule in rule 3745-27-01 of the Administrative Code shall be construed as a reference to rule 3745-580-22 of the Administrative Code.

(B) Any reference to this rule in rule 3745-27-17 of the Administrative Code shall be construed as a reference to rule 3745-580-725 of the Administrative Code.

(C) Any reference to this rule in rule 3745-27-99 of the Administrative Code shall be construed as a reference to rule 3745-580-725 of the Administrative Code.

3745-27-73

Replaces:	3745-27-73
Effective:	6/30/2023
Five Year Review (FYR) Dates:	06/30/2028

CERTIFIED ELECTRONICALLY

Certification

06/16/2023

Date

Promulgated Under:	119.03
Statutory Authority:	3734.02, 3734.12, 3734.72
Rule Amplifies:	3734.72, 3734.77
Prior Effective Dates:	03/01/1996, 08/15/2003

3745-27-74 Post-closure care of scrap tire monofill facilities.

(A) Any reference to this rule in rule 3745-27-16 of the Administrative Code shall be construed as a reference to rule 3745-580-22 of the Administrative Code.

(B) Any reference to this rule in rule 3745-27-17 of the Administrative Code shall be construed as a reference to rule 3745-580-726 of the Administrative Code.

3745-27-74

Replaces:	3745-27-74
Effective:	6/30/2023
Five Year Review (FYR) Dates:	06/30/2028

CERTIFIED ELECTRONICALLY

Certification

06/16/2023

Date

Promulgated Under:	119.03
Statutory Authority:	3734.02, 3734.12, 3734.72
Rule Amplifies:	3734.72, 3734.77
Prior Effective Dates:	03/01/1996, 08/15/2003

3745-27-78 Beneficial use of scrap tires.

(A) Any reference to this rule in rule 3745-27-01 of the Administrative Code shall be construed as a reference to rules 3745-580-800 to 3745-580-810 of the Administrative Code, as applicable.

(B) Any reference to this rule in rule 3745-27-19 of the Administrative Code shall be construed as a reference to rules 3745-580-800 to 3745-580-810 of the Administrative Code, as applicable.

(C) Any reference to this rule in rule 3745-27-99 of the Administrative Code shall be construed as a reference to rules 3745-580-800 to 3745-580-810 of the Administrative Code, as applicable.

3745-27-78

Replaces:	3745-27-78
Effective:	6/30/2023
Five Year Review (FYR) Dates:	06/30/2028

CERTIFIED ELECTRONICALLY

Certification

06/16/2023

Date

Promulgated Under:	119.03
Statutory Authority:	3734.02, 3734.70, 3734.71, 3734.72, 3734.73, 3734.74, 3734.84
Rule Amplifies:	3734.01, 3734.02, 3734.70, 3734.71, 3734.72, 3734.73, 3734.74, 3734.84
Prior Effective Dates:	03/01/1996, 03/29/2002, 11/01/2007, 12/01/2014

3745-27-79 Soil, surface water, and ground water contamination characterization and remediation caused by open burning of scrap tires.

(A) Any reference to this rule in rule 3745-27-15 of the Administrative Code shall be construed as a reference to rule 3745-580-31 of the Administrative Code.

(B) Any reference to this rule in rule 3745-27-17 of the Administrative Code shall be construed as a reference to rule 3745-580-31 of the Administrative Code.

3745-27-79

Replaces:	3745-27-79
Effective:	6/30/2023
Five Year Review (FYR) Dates:	06/30/2028

CERTIFIED ELECTRONICALLY

Certification

06/16/2023

Date

Promulgated Under:	119.03
Statutory Authority:	3734.02, 3734.70, 3734.71, 3734.72, 3734.73, 3734.74
Rule Amplifies:	3734.70, 3734.71, 3734.72, 3734.73, 3734.74
Prior Effective Dates:	03/01/1996, 03/29/2002, 11/01/2007, 12/01/2014

3745-27-90 Standards for solid waste management districts.

This rule incorporates the goals established in the 2020 "State Solid Waste Management Plan" and the performance standards developed as specified in that plan. The 2020 "State Solid Waste Management Plan" establishes ten goals for solid waste management districts. Solid waste management districts have the option of achieving either goal 1 or goal 2 but are encouraged to achieve both. Goal 9 is optional. The goals of the 2020 "State Solid Waste Management Plan" and the performance standards incorporated into this rule are specified in the following table:

Goal	Subject	Rule Location
Goal 1	Opportunity to recycle	paragraph (E)
Goal 2	Waste reduction and recycling rate	paragraph (F)
Goal 3	Minimum outreach and education	paragraph (G)
Goal 4	Outreach plan and general requirements	paragraph (H)
Goal 5	Industrial programs and services	paragraph (I)
Goal 6	Restricted solid wastes, household hazardous waste, and electronics	paragraph (J)
Goal 7	Economic incentives	paragraph (K)
Goal 8	Greenhouse gas reduction	paragraph (L)
Goal 9	Market development	paragraph (M)
Goal 10	Reporting	paragraph (N)

(A) For the purposes of this rule, terms are defined as follows:

(1) "Commercial recycling opportunities" means recycling service providers, drop off locations, buy back operations, scrap yards, and material recovery facilities that provide commercial and industrial sectors the ability to recycle. Commercial recycling opportunities include recycling opportunities that allow for the collection of at least five of the following materials:

(a) Corrugated cardboard.

(b) Mixed paper or any of the following grades of paper:

(i) Office paper.

(ii) Newspaper.

(iii) Magazines.

(c) Paperboard.

(d) Glass beverage and food containers.

(e) Steel beverage and food containers.

(f) Aluminum beverage and food containers.

(g) Plastic bottles and jugs.

(h) Pallets.

(i) Packaging.

[Comment: For the purposes of this rule, the term "commercial businesses" is used to refer to commercial businesses and institutions.]

(2) "Drop off recycling locations" means only those recycling locations that meet the following:

(a) Allow residents to easily find and access the site.

(b) Provide a minimum of six cubic yards of capacity.

(c) Include signs that provide at a minimum the following information:

(i) The location of the site.

(ii) The materials that are accepted.

(iii) The days and hours of operation.

(d) Are serviced in frequencies that meet the demand of the intended population, use of the site, and prevent overflows.

(3) "Full-service rural drop-off recycling location" means a drop-off recycling location in a political subdivision with a residential population of less than five thousand and at a minimum is available forty hours per week.

(4) "Full-service urban drop-off recycling location" means a drop-off recycling location in a political subdivision with a residential population of five thousand or more and at a minimum is available forty hours per week.

(5) "Mixed solid waste material recovery facility" means a facility where recyclables are recovered from mixed solid waste.

(6) "Non-subscription curbside recycling service" means a curbside recycling service that at a minimum is available as follows:

(a) To residents living in single-family homes.

(b) Such that residents are automatically enrolled in the curbside recycling service and automatically receive a collection receptacle.

(c) Such that a resident can choose not to participate but cannot opt out of paying for the curbside recycling service.

(d) To include a minimum pick up frequency of once every two weeks.

(7) "Part-time drop-off recycling location" means a drop-off recycling location in a political subdivision that is available at a regularly scheduled time at a minimum of once a month.

(8) "Political subdivision" has the same meaning as in division (F) of section 2744.01 of the Revised Code.

(9) "Reference year" means the year prior to the year the solid waste management district begins preparing a solid waste management plan pursuant to section 3734.56 of the Revised Code unless otherwise designated in the solid waste management plan.

(10) "Residential recycling opportunities" means subscription and non-subscription curbside recycling services, drop-off recycling locations, and mixed solid waste recovery facilities that provide residents with the ability to recycle. Residential recycling opportunities include recycling opportunities that allow for the collection of at least five of the following materials:

(a) Corrugated cardboard.

(b) Mixed paper or any of the following grades of paper:

(i) Office paper.

(ii) Newspaper.

(iii) Magazines.

(c) Paperboard.

(d) Glass beverage and food containers.

(e) Steel beverage and food containers.

(f) Aluminum beverage and other containers.

(g) Plastic bottles and jugs.

(11) "Subscription curbside recycling" means a curbside recycling service that at a minimum is available as follows:

(a) To all residents living in single-family homes.

(b) To all residents that have trash collection service due to an ordinance, franchise agreement, or another mechanism established by the political subdivision.

(c) Such that residents decide whether to receive curbside recycling service.

(d) Only to those residents that subscribe and submit payment for the curbside recycling service.

(e) To include a minimum pick up frequency of once every two weeks.

(B) A solid waste management district preparing a solid waste management plan pursuant to section 3734.55 of the Revised Code, amending a solid waste management plan pursuant to section 3734.56 of the Revised Code, or addressing a material change in circumstances pursuant to division (D) of section 3734.56 of the Revised Code shall prepare a solid waste management plan in accordance with paragraphs (C) to (M) of this rule and section 3734.53 of the Revised Code.

(C) A solid waste management district shall prepare a solid waste management plan in a format prescribed by the director in accordance with division (A) of section 3734.53 of the Revised Code.

(D) A solid waste management district shall submit the solid waste management plan to the director. The director shall not approve a solid waste management plan unless the director determines that the solid waste

management plan meets the requirements of this rule.

(E) The solid waste management plan shall include a demonstration that residents and commercial businesses in each county of the solid waste management district have the opportunity to recycle solid waste.

(1) The demonstration for providing residential recycling opportunities shall include the following:

(a) An inventory of the residential recycling opportunities that existed in the reference year.

(b) Population credits assigned to curbside recycling services as follows:

(i) For a subscription curbside recycling service, the population credit is assigned using one of the following methods, whichever is greater:

(a) The total population of the political subdivision where subscription to a curbside recycling service is available multiplied by twenty-five per cent.

(b) The population of the political subdivision using the subscription curbside recycling service based on the actual number of subscriptions to the subscription curbside recycling service or another measure of participation.

(c) The number of households within the political subdivision with the ability to use the subscription curbside recycling service multiplied by 2.6 people per household multiplied by twenty-five per cent.

(ii) For a non-subscription curbside recycling service, the population credit is the total population of the political subdivision where a non-subscription curbside recycling service is available.

(c) Population credits assigned to drop-off recycling locations as follows:

(i) For a full-service urban drop-off recycling location, the population credit is five thousand.

(ii) For a full-service rural drop-off recycling location, the population credit is two thousand five hundred.

(iii) For a part-time drop-off recycling location, the population credit is two thousand five hundred.

(iv) The solid waste management district may assign a higher population credit to a drop-off recycling location if the solid waste management plan demonstrates higher participation based on the tons of recyclables recovered at the drop-off recycling location. The format prescribed by the director establishes the demonstration method.

(d) Population credits assigned to a mixed solid waste material recovery facility as follows:

(i) For a mixed solid waste material recovery facility that has an overall recovery rate of fifteen per cent or greater, the population credit is the population that generates the solid waste taken to the mixed solid waste material recovery facility.

(ii) For a mixed solid waste material recovery facility that has an overall recovery rate of less than fifteen per cent, a population credit is based on the following calculation:

The population that generates the solid waste taken to a mixed solid waste material recovery facility x (the recovery rate expressed as a percentage/fifteen per cent).

(e) A calculation of the percentage of the residential population in each county of the solid waste management district that had the opportunity to recycle in the reference year. For the purposes of this rule, the calculation shall consist of summing the populations credits assigned to each recycling opportunity in accordance with paragraph (E)(1) of this rule, dividing the sum by the total population of the county, and multiplying the quotient by one hundred.

(f) A demonstration of either of the following:

(i) The solid waste management district had sufficient recycling opportunities in the reference year to provide a minimum of eighty per cent of the residential population within each county of the solid waste management district the opportunity to recycle.

(ii) The solid waste management district will implement new or upgraded recycling opportunities to provide a minimum of eighty per cent of the residential population within each county of the solid waste management district the opportunity to recycle by the third anniversary of the date the director approved the solid waste management plan.

(g) Details regarding the additional recycling opportunities the solid waste management district will implement pursuant to paragraph (E)(1)(f)(ii) of this rule and a demonstration that those opportunities will be implemented as follows:

(i) In accordance with a schedule established in the solid waste management plan.

(ii) By the third anniversary of the date the director approved the solid waste management plan.

(h) A solid waste management district may submit a request to the director to reduce the eighty per cent opportunity to recycle established in paragraph (E)(1)(f) of this rule. The request shall contain a justification for how current and planned recycling opportunities are sufficient to achieve the specifications of paragraph (E)(1)(f) of this rule. Potential demonstration factors may include but are not limited to the following:

(i) Current or planned recycling drop-off sites are located on transportation corridors.

(ii) Current or planned recycling drop-off sites are located near the border of two political subdivisions within the district that serve residents from both political subdivisions.

(iii) Recycling drop-off locations are in high traffic areas.

(iv) Current or planned recycling drop-off sites are in areas where curbside service is not currently available.

(v) Drop-offs serve multi-family households.

(vi) Other factors requested by Ohio EPA.

(i) A demonstration of either of the following:

(i) The solid waste management district will implement and maintain sufficient recycling opportunities throughout the entire planning period to provide a minimum of eighty percent of the residential population the opportunity to recycle.

(ii) If the director approved a waiver in accordance with paragraph (E)(1)(h) of this rule, how the solid waste management district will make sufficient recycling opportunities available

throughout the entire planning period for the approved per cent of the residential population.

(j) Details of how the solid waste management district will encourage participation in available recycling opportunities.

(2) The demonstration for providing commercial recycling opportunities shall include the following:

(a) An inventory of the commercial recycling opportunities that existed in the reference year.

(b) A demonstration of one of the following:

(i) The solid waste management district had sufficient commercial recycling opportunities in the reference year to give commercial generators within each county of the solid waste management district the opportunity to recycle.

(ii) The solid waste management district will implement new or upgraded commercial recycling opportunities to give commercial generators within each county of the solid waste management district the opportunity to recycle by the third anniversary of the date the director approved the solid waste management plan.

(c) Details regarding the additional commercial recycling opportunities the solid waste management district will implement pursuant to paragraph (E)(2)(b)(ii) of this rule and a demonstration that those opportunities will be implemented as follows:

(i) In accordance with a schedule established in the solid waste management plan, and.

(ii) By the third anniversary of the date the director approved the solid waste management plan.

(d) A demonstration that the solid waste management district will implement and maintain sufficient commercial recycling opportunities throughout the entire planning period to give commercial generators within each county of the solid waste management district the opportunity to recycle.

(3) If the solid waste management district achieved a reduction and recycling rate for the residential and commercial sector of less than twenty-five per cent in the reference year, the solid waste management plan shall provide a demonstration that the solid waste management district will achieve annual increases in the reduction and recycling rate for the residential and commercial sector.

(F) The solid waste management plan shall demonstrate that the solid waste management district will meet the goal of a twenty five per cent waste reduction and recycling rate for solid wastes generated by the residential and commercial sector. At a minimum, the demonstration shall include the following:

(1) An inventory of the solid waste generated by the residential and commercial sector that was recycled in the reference year.

(2) A calculation of the percentage of solid waste generated by the solid waste management district's residential and commercial sector that was reduced and recycled in the reference year. The format prescribed by the director establishes the calculation. A solid waste management district shall not credit the following materials to the calculation of achieving the reduction and recycling percentage:

(a) Train boxcars.

(b) Metals from motor vehicle salvage operations, including auto bodies, auto parts, and other vehicle bodies or parts.

(c) Construction and demolition debris.

(d) Manure.

(e) Agricultural waste.

(f) Waste used as alternative daily cover pursuant to rule 3745-27-19 of the Administrative Code.

(g) Municipal sewage sludge, unless the solid waste management district can demonstrate the municipal sewage sludge previously was disposed in a solid waste landfill facility. The format prescribed by the director establishes the demonstration method.

(h) Recyclables collected through a recycling opportunity that are disposed or used within the limits of waste placement at a solid waste landfill facility.

(3) A demonstration of either of the following:

(a) The solid waste management district achieved a reduction and recycling rate of twenty-five per cent for the residential and commercial sector in the reference year.

(b) The solid waste management district will implement new or upgraded programs to reduce or recycle additional solid waste adequate to achieve a reduction and recycling rate of twenty five per cent for the residential and commercial sector by the third anniversary of the date the director approved the solid waste management plan.

(4) Details regarding the additional reduction and recycling programs the solid waste management district will implement pursuant to paragraph (F)(3)(b) of this rule and a demonstration that those reduction and recycling programs will be implemented as follows:

(a) In accordance with a schedule established in the solid waste management plan.

(b) By the third anniversary of the date the director approved the solid waste management plan.

(5) A demonstration that the solid waste management district will maintain a minimum reduction and recycling rate of at least twenty-five per cent for the residential and commercial solid waste throughout the entire planning period.

(G) The solid waste management plan shall demonstrate that the solid waste management district will provide at a minimum the following outreach and education resources:

(1) A website.

(2) A comprehensive resource guide that includes a compilation of reduction and recycling opportunities for specific materials.

(3) An inventory of the currently available solid waste recycling opportunities and management infrastructure within the solid waste management district.

(4) A person who can function as a speaker or presenter when needed.

(H) The solid waste management plan shall include an outreach and marketing plan that establishes the solid waste management district's strategy for providing education, outreach, marketing, and technical assistance regarding reduction, recycling, composting, reuse, and other alternative waste management methods. The

outreach and marketing plan shall include the following:

(1) Strategies to address all the following target audiences within the solid waste management district:

(a) Residents, including those in single and multi-family units.

(b) Schools.

(c) Industries.

(d) Institutions and commercial businesses.

(e) Communities and elected officials.

(2) A demonstration that the solid waste management district will adhere to the following best practices when selecting programs and strategies to address the target audiences specified in paragraph (H)(1) of this rule:

(a) Familiarization with the available solid waste management infrastructure within the district.

(b) Providing outreach within the context of the solid waste management infrastructure.

(c) Developing and implementing an effective outreach strategy that may include but is not limited to the following:

(i) Establishing measurable outcomes.

(ii) Understanding of the needs of different audiences.

(iii) Maintaining a consistent message across all marketing and outreach initiatives.

(iv) A focus on changing behavior within the district.

(v) An evaluation of the results of the outreach program to determine if the program achieved the desired outcome.

(3) An outreach priority and a description of the programs the solid waste management district will provide for all appropriate target audiences to achieve the outreach goal.

(I) The solid waste management plan shall include a strategic initiative for the industrial sector consisting of a minimum of three programs the solid waste management district will make available to industrial generators. The programs may include but are not limited to the following:

(1) Waste audits and assessments.

(2) Assistance with contracting for recycling services.

(3) Assistance with identifying grants for developing or improving recycling.

(4) Workshops.

(5) Assistance with establishing recycling and waste reduction programs.

(6) Assistance with improving existing recycling programs.

(7) Collaboration through the "Ohio Materials Marketplace."

[Comment: The "Ohio Materials Marketplace" is a free online platform allowing businesses and organizations to connect and find reuse and recycling solutions for waste and by-product materials. The Ohio EPA manages the "Ohio Materials Marketplace" with support from the US business council for sustainable development.]

(8) Business roundtables.

(9) Revolving loan funds.

(10) Waste reduction analysis.

(11) Extended producer responsibility opportunities.

(12) Industrial recycling cooperatives.

(13) Collection service.

(14) Other programs or activities identified by the solid waste management district or Ohio EPA.

(J) The solid waste management plan shall include strategies for managing the following:

(1) Scrap tires.

(2) Household hazardous wastes.

(3) Yard waste.

(4) Lead-acid batteries.

(5) Electronic devices.

(K) The solid waste management plan shall include an evaluation of how economic incentives can be incorporated into the solid waste management district's programs and activities.

(L) The solid waste management plan shall include an evaluation of the impact of recycling programs on reducing greenhouse gases.

(M) A solid waste management district may include market development strategies for promoting the use of recycled products and developing local markets for recovered materials in the solid waste management plan. A market development strategy is not a mandatory element of a solid waste management plan.

(N) A solid waste management district shall submit an annual district report to Ohio EPA on a form prescribed by the director not later than the first day of June each year. Information contained in the report shall be based on the previous calendar year. The report shall evaluate the solid waste management district's implementation of the strategies, programs, and activities listed in the implementation schedule of the solid waste management district's approved solid waste management plan and the progress made toward the waste reduction and recycling requirements established in paragraphs (E) to (M) of this rule. The annual district report shall include the following:

(1) A detailed account of the status of the ongoing, new, and proposed facilities, strategies, programs, and activities listed in the implementation schedule of the solid waste management district's approved solid

waste management plan.

(2) An inventory of the solid waste management methods that are available in the solid waste management district as alternatives to landfilling such as reducing, recycling, and composting and the types and quantities of municipal solid waste, yard waste, and industrial waste managed by these methods during the year.

(3) A description of waste reduction and recycling activities that occurred during the year and the amount reduced and recycled.

(4) Quantities of waste generated in the solid waste management district that were disposed in out-of-state landfills.

(5) Copies of revisions, additions, or rescissions of the solid waste management district's rules adopted under division (G) of section 343.01 of the Revised Code.

(6) An inventory of municipalities and townships that levy a host community fee under division (C) of section 3734.57 of the Revised Code and the host community fee collected.

3745-27-90

Replaces:	3745-27-90
Effective:	12/1/2020
Five Year Review (FYR) Dates:	12/01/2025

CERTIFIED ELECTRONICALLY

Certification

11/02/2020

Date

Promulgated Under:	119.03
Statutory Authority:	3734.50
Rule Amplifies:	343.01, 3734.53
Prior Effective Dates:	06/01/1994, 08/01/1996, 05/10/2001, 05/23/2014

3745-27-99 Requirements for professional engineer certification of plans, specifications, and information.

(A) Applicability.

This rule applies to plans, specifications, or information submitted to Ohio EPA for review, consideration, or decision as part of an application for permit to install, license, or registration; any other request for authorization submitted under Chapter 3734. of the Revised Code or Chapter 3745-27 of the Administrative Code; or any other submittal intended to demonstrate compliance with any statute, rule, or authorization.

(B) Certification requirements:

(1) The following plan drawings shall be prepared and sealed by a licensed professional engineer:

(a) Plan drawings prepared and submitted as part of a permit to install application pursuant to one or a combination of the following:

(i) Paragraphs (B)(3) to (B)(5) of rule 3745-27-37 of the Administrative Code, for an infectious waste treatment facility.

(ii) Paragraphs (B)(3) to (B)(5) of rule 3745-27-50 of the Administrative Code, for a solid waste incinerator facility.

(iii) Paragraphs (C)(4) to (C)(7) of rule 3745-27-63 of the Administrative Code, for a class I scrap tire storage facility or class I scrap tire recovery facility.

(iv) Paragraphs (B)(3)(b), (B)(3)(e) to (B)(3)(h), (B)(4), (B)(5)(b), (B)(6), and (B)(7) of rule 3745-27-70 of the Administrative Code, for a scrap tire monofill facility.

(b) (B)(3)(b), (B)(3)(c), (B)(3)(e) to (B)(3)(h), (B)(4), (B)(5)(b) to (B)(5)(d), (B)(6), and (B)(7) of rule 3745-30-05 of the Administrative Code, for a residual waste landfill facility.Plan drawings prepared and submitted as part of a plan or report pursuant to one or a combination of the following:

(i) Paragraph (H) of rule 3745-27-72 of the Administrative Code, for a scrap tire monofill facility construction certification report.

(ii) Paragraphs (B)(4) and (J) of rule 3745-27-73 of the Administrative Code, for a scrap tire monofill facility closure certification.

(2) The following narrative plans, specifications, and information shall be prepared and sealed by a licensed professional engineer:

(a) Narrative information prepared and submitted as part of a permit to install application pursuant to one or a combination of the following:

(i) Paragraph (C)(2) of rule 3745-27-37 of the Administrative Code, for an infectious waste treatment facility.

(ii) Paragraphs (C)(3)(b) and (C)(3)(d) of rule 3745-27-50 of the Administrative Code, for a solid waste incinerator facility.

(iii) Paragraphs (C)(4) to (C)(6) and (C)(8) of rule 3745-27-70 of the Administrative Code, for a scrap tire monofill facility.

(b) Narrative information prepared and submitted as part of a plan or report pursuant to one or a combination of the following:

(i) Paragraph (H) of rule 3745-27-72 of the Administrative Code, for a scrap tire monofill facility construction certification report.

(ii) Paragraphs (B)(5) to (B)(8), and (J) of rule 3745-27-73 of the Administrative Code, for a scrap tire monofill facility closure plan and closure certification.

(3) The following plans, specifications, and information may be required to be prepared and sealed by a licensed professional engineer. Such requirement is dependent upon the scope of the activities proposed in the plans, specifications, and information and whether such activities constitute the practice of engineering pursuant to Chapter 4733. of the Revised Code. Those portions of the following authorization requests which constitute the practice of engineering are required to have affixed a professional engineer seal. Those portions which do not constitute the practice of engineering, such as general discussion, hydrogeologic analyses, and operational information do not require affixation of a professional engineer seal.

(a) Request for authorization to beneficially use scrap tires pursuant to rule 3745-27-78 of the Administrative Code.

(b) Request for authorization of a ground water corrective measures plan pursuant to rule 3745-27-10 or 3745-30-08 of the Administrative Code.

(c) Request for variance pursuant to division (A) section 3734.02 of the Revised Code or rule 3745-27-03 of the Administrative Code.

(d) Any other request for authorization, as required by the director of environmental protection.

3745-27-99

Effective:	12/1/2020
Five Year Review (FYR) Dates:	6/25/2020 and 12/01/2025

CERTIFIED ELECTRONICALLY

Certification

11/02/2020

Date

Promulgated Under:	119.03
Statutory Authority:	3734.02, 3734.12
Rule Amplifies:	3734.02, 3734.12
Prior Effective Dates:	10/17/2003, 11/01/2007, 05/25/2015