

Part I

Definitions

9VAC20-80-10. Definitions.

The following words and terms when used in this chapter shall have the following meanings unless the context clearly indicates otherwise:

"Abandoned facility" means any inactive solid waste management facility that has not met closure and post-closure requirements.

"Active life" means the period of operation beginning with the initial receipt of solid waste and ending at completion of closure activities required by this chapter.

"Active portion" means that part of a facility or unit that has received or is receiving wastes and that has not been closed in accordance with this chapter.

"Agricultural waste" means all solid waste produced from farming operations.

"Airport" means, for the purpose of this chapter, a military airfield or a public-use airport open to the public without prior permission and without restrictions within the physical capacities of available facilities.

"Anaerobic digestion" means the decomposition of organic materials in the absence of oxygen or under low oxygen concentration. Anaerobic conditions occur when gaseous oxygen is depleted during respiration. Anaerobic decomposition is not considered composting.

"Applicant" means any and all persons seeking or holding a permit under this chapter.

"Aquifer" means a geologic formation, group of formations, or a portion of a formation capable of yielding significant quantities of ground water to wells or springs.

"Areas susceptible to mass movement" means those areas of influence (i.e., areas characterized as having an active or substantial possibility of mass movement) where the movement of earth material

at, beneath, or adjacent to the solid waste management unit, because of natural or man-induced events, results in the downslope transport of soil and rock material by means of gravitational influence. Areas of mass movement include, but are not limited to, landslides, avalanches, debris slides and flows, soil fluctuation, block sliding, and rock fall.

"Ash" means the fly ash or bottom ash residual waste material produced from incineration or burning of solid waste or from any fuel combustion.

"Base flood" see "Hundred-year flood."

"Bedrock" means the rock that underlies soil or other unconsolidated, superficial material at a site.

"Benchmark" means a permanent monument constructed of concrete and set in the ground surface below the frostline with identifying information clearly affixed to it. Identifying information will include the designation of the benchmark as well as the elevation and coordinates on the local or Virginia state grid system.

"Beneficial use" means a use which is of benefit as a substitute for natural or commercial products and does not contribute to adverse effects on health or environment.

"Bioremediation" means remediation of contaminated media by the manipulation of biological organisms to enhance the degradation of contaminants.

"Bird hazard" means an increase in the likelihood of bird/aircraft collisions that may cause damage to the aircraft or injury to its occupants.

"Board" means the Virginia Waste Management Board.

"Bottom ash" means ash or slag that has been discharged from the bottom of the combustion unit after combustion.

"By-product material" means a material that is not one of the primary products of a production process and is not solely or separately produced by the production process. By-product does not

include a co-product that is produced for the general public's use and is ordinarily used in the form that is produced by the process.

"Captive industrial landfill" means an industrial landfill that is located on property owned or controlled by the generator of the waste disposed of in that landfill.

"Clean wood" means uncontaminated natural or untreated wood. Clean wood includes but is not limited to by-products of harvesting activities conducted for forest management or commercial logging, or mill residues consisting of bark, chips, edgings, sawdust, shavings or slabs. It does not include wood that has been treated, adulterated, or chemically changed in some way; treated with glues, binders, or resins; or painted, stained or coated.

"Closed facility" means a solid waste management facility which has been properly secured in accordance with the requirements of this chapter.

"Closure" means ~~the act of securing a solid waste management facility pursuant to the requirements of this chapter.~~ that point in time when a waste unit of a permitted landfill is filled, capped, certified as final covered by a Professional Engineer, inspected, and the closure activities are accepted by the Department of Environmental Quality (DEQ).

"Coal combustion by-products" means residuals, including fly ash, bottom ash, boiler slag, and flue gas emission control waste produced by coal-fired electrical or steam generating units.

"Combustion unit" means an incinerator, waste heat recovery unit or boiler.

"Commercial chemical product" means a chemical substance which is manufactured or formulated for commercial, agricultural or manufacturing use. This term includes a manufacturing chemical intermediate, off-specification chemical product, which, if it met specification, would have been a chemical product or intermediate. It includes any residues remaining in the container or the inner liner removed from the container that has been used to hold any of the above which have not been

removed using the practices commonly employed to remove materials from that type of container and has more than one inch of residue remaining.

"Commercial waste" means all solid waste generated by establishments engaged in business operations other than manufacturing or construction. This category includes, but is not limited to, solid waste resulting from the operation of stores, markets, office buildings, restaurants and shopping centers.

"Community activity" means the normal activities taking place within a local community to include residential, site preparation and construction, government, commercial, institutional, and industrial activities.

"Compliance schedule" means a time schedule for measures to be employed on a solid waste management facility which will ultimately upgrade it to conform to this chapter.

"Composite liner system" means a system designed and constructed to meet the requirements of 9VAC20-80-250 B 9.

"Compost" means a stabilized organic product produced by a controlled aerobic decomposition process in such a manner that the product can be handled, stored, and/or applied to the land without adversely affecting public health or the environment. Composted sludge shall be as specified in 12VAC5-581-630.

"Composting" means the manipulation of the natural aerobic process of decomposition of organic materials to increase the rate of decomposition.

"Conditionally exempt small quantity generator" means a generator of hazardous waste who has been so defined in 40 CFR 261.5. That section applies to the persons who generate in that calendar month no more than 100 kilograms of hazardous waste or 1 kilogram of acutely hazardous waste.

"Confined composting system" means a composting process that takes place inside an enclosed container.

"Construction/Demolition/Debris landfill" or "CDD landfill" means a land burial facility engineered, constructed and operated to contain and isolate construction waste, demolition waste, debris waste, or combinations of the above solid wastes.

"Construction waste" means solid waste which is produced or generated during construction, remodeling, or repair of pavements, houses, commercial buildings, and other structures.

Construction wastes include, but are not limited to lumber, wire, sheetrock, broken brick, shingles, glass, pipes, concrete, paving materials, and metal and plastics if the metal or plastics are a part of the materials of construction or empty containers for such materials. Paints, coatings, solvents, asbestos, any liquid, compressed gases or semi-liquids and garbage are not construction wastes.

"Contaminated soil" means, for the purposes of this chapter, a soil that, as a result of a release or human usage, has absorbed or adsorbed physical, chemical, or radiological substances at concentrations above those consistent with nearby undisturbed soil or natural earth materials.

"Container" means any portable device in which a material is stored, transported, treated, or otherwise handled and includes transport vehicles that are containers themselves (e.g., tank trucks) and containers placed on or in a transport vehicle.

"Containment structure" means a closed vessel such as a tank or cylinder.

"Convenience center" means a collection point for the temporary storage of solid waste provided for individual solid waste generators who choose to transport solid waste generated on their own premises to an established centralized point, rather than directly to a disposal facility. To be classified as a convenience center, the collection point may not receive waste from collection

vehicles that have collected waste from more than one real property owner. A convenience center shall be on a system of regularly scheduled collections.

"Cover material" means compactable soil or other approved material which is used to blanket solid waste in a landfill.

"Debris waste" means wastes resulting from land clearing operations. Debris wastes include, but are not limited to stumps, wood, brush, leaves, soil, and road spoils.

"Demolition waste" means that solid waste which is produced by the destruction of structures and their foundations and includes the same materials as construction wastes.

"Department" means the Virginia Department of Environmental Quality.

"Director" means the Director of the Department of Environmental Quality. For purposes of submissions to the director as specified in the Waste Management Act, submissions may be made to the department.

"Discard" means to abandon, dispose of, burn, incinerate, accumulate, store or treat before or instead of being abandoned, disposed of, burned or incinerated.

"Discarded material" means a material which is:

A. Abandoned by being:

1. Disposed of;
2. Burned or incinerated; or
3. Accumulated, stored or treated (but not used, reused, or reclaimed) before or in lieu of being abandoned by being disposed of, burned or incinerated;

B. Recycled used, reused, or reclaimed material as defined in this part; or

C. Considered inherently waste-like as described in 9VAC20-80-140 C.

"Discharge of dredged material" means any release of material that is excavated or dredged from the waters of the U.S. or state waters and returned to the waters of the U.S. or state waters.

"Disclosure statement" means a sworn statement or affirmation, in such form as may be required by the director (see DEQ Form DISC-01 and 02 (Disclosure Statement)), which includes:

1. The full name, business address, and social security number of all key personnel;
2. The full name and business address of any entity, other than natural person, that collects, transports, treats, stores, or disposes of solid waste or hazardous waste in which any key personnel holds an equity interest of five percent or more;
3. A description of the business experience of all key personnel listed in the disclosure statement;
4. A listing of all permits or licenses required for the collection, transportation, treatment, storage, or disposal of solid waste or hazardous waste issued to or held by any key personnel within the past 10 years;
5. A listing and explanation of any notices of violation, prosecution, administrative orders (whether by consent or otherwise), license or permit suspensions or revocations, or enforcement actions of any sort by any state, federal or local authority, within the past ten years, which are pending or have concluded with a finding of violation or entry of a consent agreement, regarding an allegation of civil or criminal violation of any law, regulation or requirement relating to the collection, transportation, treatment, storage or disposal of solid waste or hazardous waste by any key personnel, and an itemized list of all convictions within ten years of key personnel of any of the following crimes punishable as felonies under the laws of the Commonwealth or the equivalent thereof under the laws of any other jurisdiction: murder; kidnapping; gambling; robbery; bribery; extortion; criminal usury; arson; burglary; theft and related crimes; forgery and fraudulent practices; fraud in the offering, sale, or purchase of securities; alteration of motor vehicle identification

numbers; unlawful manufacture, purchase, use or transfer of firearms; unlawful possession or use of destructive devices or explosives; violation of the Drug Control Act, Chapter 34 (§54.1-3400 et seq.) of Title 54.1 of the Code of Virginia; racketeering; or violation of antitrust laws;

6. A listing of all agencies outside the Commonwealth which have regulatory responsibility over the applicant or have issued any environmental permit or license to the applicant within the past ten years, in connection with the applicant's collection, transportation, treatment, storage or disposal of solid waste or hazardous waste;

7. Any other information about the applicant and the key personnel that the director may require that reasonably relates to the qualifications and ability of the key personnel or the applicant to lawfully and competently operate a solid waste management facility in Virginia; and

8. The full name and business address of any member of the local governing body or planning commission in which the solid waste management facility is located or proposed to be located, who holds an equity interest in the facility.

"Displacement" means the relative movement of any two sides of a fault measured in any direction.

"Disposal" means the discharge, deposit, injection, dumping, spilling, leaking or placing of any solid waste into or on any land or water so that such solid waste or any constituent of it may enter the environment or be emitted into the air or discharged into any waters.

"EPA" means the United States Environmental Protection Agency.

"Existing unit" means any permitted solid waste management unit that is receiving or has received solid waste and has not been closed in accordance with the regulations in effect at the time of closure. Waste placement in existing units shall be consistent with past operating practices, the permit, or modified practices to ensure good management.

"Facility" means solid waste management facility unless the context clearly indicates otherwise.

"Facility boundary" means the boundary of the solid waste management facility approved to manage solid waste as defined in Part A of the permit application. For unpermitted solid waste management facilities as defined in 9VAC20-80-200, the facility boundary is the boundary of the property where the solid waste is located. For facilities with a permit-by-rule (PBR) the facility boundary is the boundary of the property where the permit-by-rule activity occurs.

"Facility structure" means any building, shed, or utility or drainage line on the facility.

"Fault" means a fracture or a zone of fractures in any material along which strata on one side have been displaced with respect to that on the other side.

"Floodplain" means the lowland and relatively flat areas adjoining inland and coastal waters, including lowlying areas of offshore islands where flooding occurs.

"Fly ash" means ash particulate collected from air pollution attenuation devices on combustion units.

"Food chain crops" means crops grown for human consumption, tobacco, and crops grown for pasture and forage or feed for animals whose products are consumed by humans.

"Fossil fuel combustion products" means coal combustion byproducts as defined in this regulation, coal combustion byproducts generated at facilities with fluidized bed combustion technology, petroleum coke combustion byproducts, byproducts from the combustion of oil, byproducts from the combustion of natural gas, and byproducts from the combustion of mixtures of coal and "other fuels" (i.e., co-burning of coal with "other fuels" where coal is at least 50% of the total fuel). For purposes of this definition, "other fuels" means waste-derived fuel product, auto shredder fluff, wood wastes, coal mill rejects, peat, tall oil, tire-derived fuel, deionizer resins, and used oil.

"Free liquids" means liquids which readily separate from the solid portion of a waste under ambient temperature and pressure as determined by the Paint Filter Liquids Test, Method 9095, U.S.

Environmental Protection Agency, Publication SW-846.

"Garbage" means readily putrescible discarded materials composed of animal, vegetable or other organic matter.

"Gas condensate" means the liquid generated as a result of gas control or recovery processes at the solid waste management unit.

"Ground water" means water below the land surface in a zone of saturation.

"Hazardous constituent" means a constituent of solid waste listed in Part V, Table 5.1.

"Hazardous waste" means a "hazardous waste" as described by the Virginia Hazardous Waste Management Regulations (9VAC20-60).

"Holocene" means the most recent epoch of the Quaternary period, extending from the end of the Pleistocene Epoch to the present.

"Home use" means the use of compost for growing plants which is produced and used on a privately owned residential site.

"Host agreement" means any lease, contract, agreement or land use permit entered into or issued by the locality in which the landfill is situated that includes terms or conditions governing the operation of the landfill.

"Household hazardous waste" means any waste material derived from households (including single and multiple residences, hotels, motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds and day-use recreation areas) which, except for the fact that it is derived from a household, would otherwise be classified as a hazardous waste in accordance with 9VAC20-60.

"Household waste" means any waste material, including garbage, trash and refuse, derived from households. Households include single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds and day-use recreation areas.

Household wastes do not include sanitary waste in septic tanks (seepage) which is regulated by other state agencies.

"Hundred-year flood" means a flood that has a 1.0% or greater chance of recurring in any given year or a flood of magnitude equaled or exceeded on the average only once in a hundred years on the average over a significantly long period.

"Ignitable waste" means: (i) Liquids having a flash point of less than 140°F (60°C) as determined by the methods specified in the Virginia Hazardous Waste Management Regulations (9VAC20-60); (ii) nonliquids liable to cause fires through friction, absorption of moisture, spontaneous chemical change or retained heat from manufacturing or liable, when ignited, to burn so vigorously and persistently as to create a hazard; (iii) ignitable compressed gases, oxidizers, or both.

"Incineration" means the controlled combustion of solid waste for disposal.

"Incinerator" means a facility or device designed for the treatment of solid waste by combustion.

"Industrial waste" means any solid waste generated by manufacturing or industrial process that is not a regulated hazardous waste. Such waste may include, but is not limited to, waste resulting from the following manufacturing processes: Electric power generation; fertilizer/agricultural chemicals; food and related products/by-products; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals manufacturing/foundries; organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay, and concrete products; textile manufacturing; transportation equipment; and water treatment.

This term does not include mining waste or oil and gas waste.

"Industrial waste landfill" means a solid waste landfill used primarily for the disposal of a specific industrial waste or a waste which is a by-product of a production process.

"Inert waste" means solid waste which is physically, chemically and biologically stable from further degradation and considered to be nonreactive. Inert wastes include rubble, concrete, broken bricks, bricks, and blocks.

"Injection well" means, for the purposes of this chapter, a well or bore hole into which fluids are injected into selected geological horizons.

"Institutional waste" means all solid waste emanating from institutions such as, but not limited to, hospitals, nursing homes, orphanages, and public or private schools. It can include regulated medical waste from health care facilities and research facilities that must be managed as a regulated medical waste.

"Karst terranes" means areas where karst topography, with its characteristic surface and subterranean features, is developed as the result of dissolution of limestone, dolomite, or other soluble rock. Characteristic physiographic features present in karst terranes include, but are not limited to, sinkholes, sinking streams, caves, large springs, and blind valleys.

"Key personnel" means the applicant itself and any person employed by the applicant in a managerial capacity, or empowered to make discretionary decisions, with respect to the solid waste or hazardous waste operations of the applicant in Virginia, but shall not include employees exclusively engaged in the physical or mechanical collection, transportation, treatment, storage, or disposal of solid or hazardous waste and such other employees as the director may designate by regulation. If the applicant has not previously conducted solid waste or hazardous waste operations in Virginia, the term also includes any officer, director, partner of the applicant, or any holder of five percent or more of the equity or debt of the applicant. If any holder of five percent or more of the equity or debt of the applicant or of any key personnel is not a natural person, the term includes all key personnel of that entity, provided that where such entity is a chartered lending institution or a

reporting company under the Federal Security and Exchange Act of 1934, the term does not include key personnel of such entity. Provided further that the term means the chief executive officer of any agency of the United States or of any agency or political subdivision of the Commonwealth, and all key personnel of any person, other than a natural person, that operates a landfill or other facility for the disposal, treatment, or storage of nonhazardous solid waste under contract with or for one of those governmental entities.

"Lagoon" means a body of water or surface impoundment designed to manage or treat waste water.

"Land application unit" means an area where solid or liquid wastes are applied onto or incorporated into the soil surface (excluding manure spreading operations) for agricultural purposes or for treatment or disposal.

"Landfill" means a sanitary landfill, an industrial waste landfill, or a construction/demolition/debris landfill.

"Landfill disposal area" means the area within the facility boundary of a landfill in which solid waste is buried or permitted for actual burial.

"Landfill gas" means gas generated as a byproduct of the decomposition of organic materials in a landfill. Landfill gas consists primarily of methane and carbon dioxide.

"Lateral expansion" means a horizontal expansion of the waste management unit boundary.

"Leachate" means a liquid that has passed through or emerged from solid waste and contains soluble, suspended or miscible materials from such waste. Leachate and any material with which it is mixed is solid waste; except that leachate that is pumped from a collection tank for transportation to disposal in an off-site facility is regulated as septage, leachate discharged into a waste water collection system is regulated as industrial waste water and leachate that has contaminated ground water is regulated as contaminated ground water.

"Lead acid battery" means, for the purposes of this chapter, any wet cell battery.

"Lift" means the daily landfill layer of compacted solid waste plus the cover material.

"Liquid waste" means any waste material that is determined to contain "free liquids" as defined by this chapter.

"Lithified earth material" means all rock, including all naturally occurring and naturally formed aggregates or masses of minerals or small particles of older rock that formed by crystallization of magma or by induration of loose sediments. This term does not include man-made materials, such as fill, concrete, and asphalt, or unconsolidated earth materials, soil, or regolith lying at or near the earth's surface.

"Litter" means, for purposes of this chapter, any solid waste that is discarded or scattered about a solid waste management facility outside the immediate working area.

"Lower explosive limit" means the lowest concentration by volume of a mixture of explosive gases in air that will propagate a flame at 25°C and at atmospheric pressure.

"Manufacturing or mining by-product" means a material that is not one of the primary products of a particular manufacturing or mining operation, but is a secondary and incidental product of the particular operation and would not be solely and separately manufactured or mined by the particular manufacturing or mining operation. The term does not include an intermediate manufacturing or mining product which results from one of the steps in a manufacturing or mining process and is typically processed through the next process step within a short time.

"Materials recovery facility" means a solid waste management facility for the collection, processing and recovery of material such as metals from solid waste or for the production of a fuel from solid waste. This does not include the production of a waste-derived fuel product.

"Maximum horizontal acceleration in lithified earth material" means the maximum expected horizontal acceleration depicted on a seismic hazard map, with a 90% or greater probability that the acceleration will not be exceeded in 250 years, or the maximum expected horizontal acceleration based on a site-specific seismic risk assessment.

"Monitoring" means all methods, procedures and techniques used to systematically analyze, inspect and collect data on operational parameters of the facility or on the quality of air, ground water, surface water, and soils.

"Monitoring wells" means a well point below the ground surface for the purpose of obtaining periodic water samples from ground water for quantitative and qualitative analysis.

"Mulch" means woody waste consisting of stumps, trees, limbs, branches, bark, leaves and other clean wood waste which has undergone size reduction by grinding, shredding, or chipping, and is distributed to the general public for landscaping purposes or other horticultural uses except composting as defined and regulated under this chapter or the Vegetative Waste Management and Yard Waste Composting Regulations (9VAC20-101).

"Municipal solid waste" means that waste which is normally composed of residential, commercial, and institutional solid waste and residues derived from combustion of these wastes.

"New solid waste management facility" means a facility or a portion of a facility that was not included in a previous determination of site suitability (Part A approval).

"Nonsudden events" mean those events continuing for an extended time period or for long term releases of contaminants into the environment which take place over time such as leachate contamination of ground water.

"Nuisance" means an activity which unreasonably interferes with an individual's or the public's comfort, convenience or enjoyment such that it interferes with the rights of others by causing damage, annoyance, or inconvenience.

"Off-site" means any site that does not meet the definition of on-site as defined in this part.

"On-site" means the same or geographically contiguous property, which may be divided by public or private right-of-way, provided the entrance and exit to the facility are controlled by the owner or the operator of the facility. Noncontiguous properties owned by the same person, but connected by a right-of-way which he controls and to which the public does not have access, are also considered on-site property.

"Open burning" means the combustion of solid waste without:

- A. Control of combustion air to maintain adequate temperature for efficient combustion;
- B. Containment of the combustion reaction in an enclosed device to provide sufficient residence time and mixing for complete combustion; and
- C. Control of the combustion products' emission.

"Open dump" means a site on which any solid waste is placed, discharged, deposited, injected, dumped or spilled so as to present a threat of a release of harmful substances into the environment or present a hazard to human health. Such a site is subject to the Open Dump Criteria in 9VAC20-80-180.

"Operating Record" means records required to be maintained in accordance with the facility permit or this part (see 9VAC20-80-570).

"Operator" means the person responsible for the overall operation and site management of a solid waste management facility.

"Owner" means the person who owns a solid waste management facility or part of a solid waste management facility.

"Permit" means the written permission of the director to own, operate or construct a solid waste management facility.

"PCB" means any chemical substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees or any combination of substances which contain such substance (see 40 CFR 761.3).

"Person" means an individual, corporation, partnership, association, a governmental body, a municipal corporation or any other legal entity.

"Point source" means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, vessel or other floating craft, from which pollutants are or may be discharged. Return flows from irrigated agriculture are not included.

"Pollutant" means any substance which causes or contributes to, or may cause or contribute to, environmental degradation when discharged into the environment.

"Poor foundation conditions" means those areas where features exist which indicate that a natural or man-induced event may result in inadequate foundation support for the structural components of a solid waste management unit.

"Post-closure" means the requirements placed upon solid waste disposal facilities after closure to ensure environmental and public health safety for a specified number of years after closure.

"Private solid waste disposal facility" means any solid waste disposal facility including, without limitations, all solid waste disposal facilities other than facilities owned or operated by a local government, combination of local governments or public service authority.

"Processing" means preparation, treatment, or conversion of waste by a series of actions, changes, or functions that bring about a desired end result.

"Progressive cover" means cover material placed over the working face of a solid waste disposal facility advancing over the deposited waste as new wastes are added keeping the exposed area to a minimum.

"Public land" means any land, used for any purpose, that is leased or owned by a governmental entity.

"Putrescible waste" means solid waste which contains organic material capable of being decomposed by micro-organisms and cause odors.

"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 sufficient training and experience in ground water hydrology and related fields as may be demonstrated by state registration, professional certifications, or completion of accredited university programs that enable that individual to make sound professional judgements regarding ground water monitoring, contaminant fate and transport, and corrective action.

"RCRA" means the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976 (42 USC §6901 et seq.), the Hazardous and Solid Waste Amendments of 1984, and any other applicable amendments to these laws.

"RDF (Refuse Derived Fuel)" means solid waste that is processed to be used as fuel to produce energy.

"Reclaimed material" means a material that is processed or reprocessed to recover a usable product or is regenerated to a usable form.

"Refuse" means all solid waste products having the character of solids rather than liquids and which are composed wholly or partially of materials such as garbage, trash, rubbish, litter, residues from clean up of spills or contamination, or other discarded materials.

"Registered professional engineer" means an engineer licensed to practice engineering in the Commonwealth as defined by the rules and regulations set forth by the Board of Architects, Professional Engineers, Land Surveyors, and Landscape Architects (18VAC10-20).

"Regulated hazardous waste" means a solid waste that is a hazardous waste, as defined in the Virginia Hazardous Waste Management Regulations (9VAC20-60), that is not excluded from those regulations as a hazardous waste.

"Regulated medical waste" means solid wastes so defined by the Regulated Medical Waste Management Regulations (9VAC20-120) as promulgated by the Virginia Waste Management Board.

"Release" means, for the purpose of this chapter, any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injection, escaping, leaching, dumping, or disposing into the environment solid wastes or hazardous constituents of solid wastes (including the abandonment or discarding of barrels, containers, and other closed receptacles containing solid waste). This definition does not include: any release which results in exposure to persons solely within a workplace; release of source, by-product or special nuclear material from a nuclear incident, as those terms are defined in the Atomic Energy Act of 1954 (68 Stat. 923); and the normal application of fertilizer. For the purpose of this chapter, release also means substantial threat of release.

"Remediation waste" means all solid waste, including all media (ground water, surface water, soils and sediments) and debris, that are managed for the purpose of remediating a site under Part IV (9VAC20-80-170 et seq.) or V (9VAC20-80-240 et seq.) of this chapter or under the Voluntary

Remediation Regulations (9VAC20-160). For a given facility, remediation wastes may originate only from within the boundary of that facility, and may include wastes managed as a result of remediation beyond the boundary of the facility. Hazardous wastes as defined in 9VAC20-60, as well as "new" or "as generated" wastes, are excluded from this definition.

"Remediation waste management unit" or "RWMU" means an area within a facility that is designated by the director for the purpose of implementing remedial activities required under Part IV or V of this chapter or under the Voluntary Remediation Regulations (9VAC20-160). An RWMU shall only be used for the management of remediation wastes pursuant to implementing such remedial activities at the facility.

"Residential waste" means household waste.

"Resource recovery system" means a solid waste management system which provides for collection, separation, use, reuse, or reclamation of solid wastes, recovery of energy and disposal of non-recoverable waste residues.

"Rubbish" means combustible or slowly putrescible discarded materials which include but are not limited to trees, wood, leaves, trimmings from shrubs or trees, printed matter, plastic and paper products, grass, rags and other combustible or slowly putrescible materials not included under the term "garbage."

"Runoff" means any rainwater, leachate, or other liquid that drains over land from any part of a solid waste management facility.

"Runon" means any rainwater, wastewater, leachate, or other liquid that drains over land onto any part of the solid waste management facility.

"Salvage" means the authorized, controlled removal of waste materials from a solid waste management facility.

"Sanitary landfill" means an engineered land burial facility for the disposal of household waste which is so located, designed, constructed and operated to contain and isolate the waste so that it does not pose a substantial present or potential hazard to human health or the environment. A sanitary landfill also may receive other types of solid wastes, such as commercial solid waste, nonhazardous sludge, hazardous waste from conditionally exempt small quantity generators, construction demolition debris, and nonhazardous industrial solid waste.

"Saturated zone" means that part of the earth's crust in which all voids are filled with water.

"Scavenging" means the unauthorized or uncontrolled removal of waste materials from a solid waste management facility.

"Scrap metal" means bits and pieces of metal parts such as bars, rods, wire, empty containers, or metal pieces that may be combined together with bolts or soldering which are discarded material and can be used, reused, or reclaimed.

"Secondary containment" means an enclosure into which a container or tank is placed for the purpose of preventing discharge of wastes to the environment.

"Seismic impact zone" means an area with a 10% or greater probability that the maximum horizontal acceleration in lithified earth material, expressed as a percentage of the earth's gravitational pull (g), will exceed 0.10g in 250 years.

"Semiannual" means an interval corresponding to approximately 180 days. For the purposes of scheduling monitoring activities, sampling within 30 days of the 180-day interval will be considered semiannual.

"Site" means all land and structures, other appurtenances, and improvements on them used for treating, storing, and disposing of solid waste. This term includes adjacent land within the facility

boundary used for the utility systems such as repair, storage, shipping or processing areas, or other areas incident to the management of solid waste.

(Note: This term includes all sites whether they are planned and managed facilities or are open dumps.)

"Sludge" means any solid, semi-solid or liquid waste generated from a municipal, commercial or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility exclusive of treated effluent from a wastewater treatment plant.

"Small landfill" means a landfill that disposed of 100 tons/day or less of solid waste during a representative period prior to October 9, 1993, and did not dispose of more than an average of 100 tons/day of solid waste each month between October 9, 1993, and April 9, 1994.

"Solid waste" means any of those materials defined as "solid waste" in Part III (9VAC20-80-140 et seq.) of this chapter.

"Solid waste boundary" means the outermost perimeter of the solid waste (vertical projection on a horizontal plane) as it would exist at completion of the disposal activity within the facility boundary.

"Solid waste disposal area" means the area within the facility boundary of a landfill facility in which solid waste is buried.

"Solid waste disposal facility" means a solid waste management facility at which solid waste will remain after closure.

"Solid waste management facility ("SWMF")" means a site used for planned treating, storing, or disposing of solid waste. A facility may consist of several treatment, storage, or disposal units.

"Source separation" means separation of recyclable materials by the waste generator of materials that are collected for use, reuse or reclamation.

"Special wastes" mean solid wastes that are difficult to handle, require special precautions because of hazardous properties or the nature of the waste creates waste management problems in normal operations. (See Part VIII (9VAC20-80-630 et seq.) of this chapter.)

"Speculatively accumulated material" means any material that is accumulated before being used, reused, or reclaimed or in anticipation of potential use, reuse, or reclamation. Materials are not being accumulated speculatively when they can be used, reused or reclaimed, have a feasible means of use, reuse, or reclamation available and 75% of the materials accumulated are being removed from the facility annually.

"Stabilized compost" means a compost that has passed the stability criteria outlined in 9VAC20-80-330 D 2 a.

"State solid waste management plan ("State Plan" or "Plan")" means the plan of the Virginia Waste Management Board that sets forth solid waste management goals and objectives and describes planning and regulatory concepts to be employed by the Commonwealth.

"State waters" means all water, on the surface and under the ground, wholly or partially within, or bordering the Commonwealth, or within its jurisdiction.

"Storage" means the holding of waste, at the end of which the waste is treated, disposed, or stored elsewhere.

"Structural components of a solid waste disposal unit" means liners, leachate collection systems, final covers, run-on/run-off systems, and any other component used in the construction and operation of the solid waste disposal facility that is necessary for protection of human health and the environment.

"Structural fill" means an engineered fill with a projected beneficial end use, constructed using soil or coal combustion by-products spread and compacted with proper equipment and covered with a vegetated soil cap.

"Sudden event" means a one time, single event such as a sudden collapse or a sudden, quick release of contaminants to the environment. An example would be the sudden loss of leachate from an impoundment into a surface stream caused by failure of a containment structure.

"Surface impoundment or impoundment" means a facility or part of a facility that is a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials (although it may be lined with man-made materials), that is designed to hold an accumulation of liquid wastes or wastes containing free liquids and that is not an injection well.

"SW-846" means Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publication SW-846, Second Edition, 1982 as amended by Update I (April, 1984), and Update II (April, 1985) and the third edition, November, 1986, as amended.

"Tank" means a stationary device, designed to contain an accumulation of liquid or semi-liquid components of solid waste that is constructed primarily of non-earthen materials that provide structural support.

"TEF" or "Toxicity Equivalency Factor" means a factor developed to account for different toxicities of structural isomers of polychlorinated dibenzodioxins and dibenzofurans and to relate them to the toxicity of 2,3,7,8-tetrachloro dibenzo-p-dioxin.

"Terminal" means the location of transportation facilities such as classification yards, docks, airports, management offices, storage sheds, and freight or passenger stations, where solid waste that is being transported may be loaded, unloaded, transferred, or temporarily stored.

"Thermal treatment" means the treatment of solid waste in a device which uses elevated temperature as the primary means to change the chemical, physical, or biological character, or composition of the solid waste.

"Tire chip" means a material processed from waste tires that is a nominal two square inches in size, and ranges from 1/4 inches to 4 inches in any dimension. Tire chips contain no wire protruding more than 1/4 inch.

"Tire shred" means a material processed from waste tires that is a nominal 40 square inches in size, and ranges from 4 inches to 10 inches in any dimension.

"Transfer station" means any solid waste storage or collection facility at which solid waste is transferred from collection vehicles to haulage vehicles for transportation to a central solid waste management facility for disposal, incineration or resource recovery.

"Trash" means combustible and noncombustible discarded materials and is used interchangeably with the term rubbish.

"Treatment" means, for the purpose of this chapter, any method, technique or process, including but not limited to incineration, designed to change the physical, chemical or biological character or composition of any waste to render it more stable, safer for transport, or more amenable to use, reuse, reclamation or recovery.

"Unadulterated wood" means wood that is not painted, nor treated with chemicals such as preservatives nor mixed with other wastes.

"Underground source of drinking water" means an aquifer or its portion:

- A. Which contains water suitable for human consumption; or
- B. In which the ground water contains less than 10,000 mg/liter total dissolved solids.

"Unit" means a discrete area of land used for the management of solid waste.

"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 landfill structural components responsible for preventing releases from a landfill. Unstable areas can include poor foundation conditions, areas susceptible to mass movements, and Karst terranes.

"Uppermost aquifer" means the geologic formation nearest the natural ground surface that is an aquifer, as well as, lower aquifers that are hydraulically interconnected with this aquifer within the facility boundary.

"Used or reused material" means a material which is either:

A. Employed as an ingredient (including use as an intermediate) in a process to make a product, excepting those materials possessing distinct components that are recovered as separate end products; or

B. Employed in a particular function or application as an effective substitute for a commercial product or natural resources.

"Vector" means a living animal, insect or other arthropod which transmits an infectious disease from one organism to another.

"Vegetative waste" means decomposable materials generated by yard and lawn care or land clearing activities and includes, but is not limited to, leaves, grass trimmings, woody wastes such as shrub and tree prunings, bark, limbs, roots, and stumps. For more detail see 9VAC20-101.

"Vertical design capacity" means the maximum design elevation specified in the facility's permit or if none is specified in the permit, the maximum elevation based on a 3:1 slope from the waste management unit boundary.

"VPDES ("Virginia Pollutant Discharge Elimination System")" means the Virginia system for the issuance of permits pursuant to the Permit Regulation (9VAC25-31), the State Water Control Law, and §402 of the Clean Water Act (33 U.S.C. §1251 et seq.).

"Washout" means carrying away of solid waste by waters of the base flood.

"Waste derived fuel product" means a solid waste or combination of solid wastes that have been treated (altered physically, chemically, or biologically) to produce a fuel product with a minimum heating value of 5,000 BTU/lb. Solid wastes used to produce a waste derived fuel product must have a heating value, or act as binders, and may not be added to the fuel for the purpose of disposal.

Waste ingredients may not be listed or characteristic hazardous wastes. The fuel product must be stable at ambient temperature, and not degraded by exposure to the elements. This material may not be "Refuse Derived Fuel (RDF)" as defined in 9VAC5-40-890.

"Waste management unit boundary" means the vertical surface located at the boundary line of the unit. This vertical surface extends down into the uppermost aquifer.

"Waste needing special handling (special waste)" means any solid waste which requires extra or unusual management when introduced into a solid waste management facility to insure protection of human health or the environment.

"Waste pile" means any non-containerized accumulation of nonflowing, solid waste that is used for treatment or storage.

"Waste tire" means a tire that has been discarded because it is no longer suitable for its original intended purpose because of wear, damage or defect. (See 9VAC20-150 for other definitions dealing with the waste tire program.)

"Wastewaters" are, for the purpose of this chapter, wastes that contain less than 1.0% by weight total organic carbon (TOC) and less than 1.0% by weight total suspended solids (TSS).

"Water pollution" means such alteration of the physical, chemical, or biological properties of any state water as will or is likely to create a nuisance or render such waters:

A. Harmful or detrimental or injurious to the public health, safety, or welfare, or to the health of animals, fish, or aquatic life or plants;

B. Unsuitable, with reasonable treatment, for use as present or possible future sources of public water supply; or

C. Unsuitable for recreational, commercial, industrial, agricultural, or other reasonable uses, provided that:

1. An alteration of the physical, chemical, or biological properties of state waters or a discharge or deposit of sewage, industrial wastes, or other wastes to state waters by any owner which by itself is not sufficient to cause pollution but which in combination with such alteration or discharge or deposit to state waters by other persons is sufficient to cause pollution;

2. The discharge of untreated sewage by any person into state waters; and

3. The contribution to the degradation of water quality standards duly established by the State Water Control Board;

are "pollution" for the terms and purposes of this chapter.

"Water table" means the upper surface of the zone of saturation in ground waters in which the hydrostatic pressure is equal to the atmospheric pressure.

"Waters of the United States or waters of the U.S." means:

A. All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

B. All interstate waters, including interstate "wetlands";

C. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mud flats, sand flats, "wetlands," sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including:

1. Any such waters which are or could be used by interstate or foreign travelers for recreational or other purposes;
2. Any such waters from which fish or shellfish are or could be taken and sold in interstate or foreign commerce;
3. Any such waters which are used or could be used for industrial purposes by industries in interstate commerce;
4. All impoundments of waters otherwise defined as waters of the United States under this definition;
5. Tributaries of waters identified in subdivisions 1 through 4 of this definition;
6. The territorial sea; and
7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in subdivisions 1 through 6 of this definition.

"Wetlands" mean those areas that are defined by the federal regulations under 33 CFR Part 328.

"White goods" means any stoves, washers, hot water heaters, and other large appliances.

"Working face" means that area within a landfill which is actively receiving solid waste for compaction and cover.

"Yard waste" means decomposable waste materials generated by yard and lawn care and includes leaves, grass trimmings, brush, wood chips, and shrub and tree trimmings. Yard waste shall not include roots or stumps that exceed six inches in diameter.

Statutory Authority

§10.1-1402 of the Code of Virginia, 42 USC §6941 et seq., and 40 CFR Part 258.

Part II

General Information

9VAC20-80-60. Applicability of chapter.

A. This chapter applies to all persons who manage or dispose of solid wastes as defined in Part III (9VAC20-80-140 et seq.) of this chapter.

B. All facilities that were permitted prior to March 15, 1993, and upon which solid waste has been disposed of prior to October 9, 1993, may continue to receive solid waste until they have reached their vertical design capacity or until the closure date established pursuant to §10.1-1413.2 of the Code of Virginia, in Tables 2.1 and 2.2, provided:

~~Note: Municipal solid waste landfills (sanitary landfills) are subject to prioritization and a schedule for closure pursuant to §10.1-1413.2 of the Code of Virginia.~~

1. The facility is in compliance with the requirements for liners and leachate control in effect at the time of permit issuance.

2. On or before October 9, 1993, the owner or operator of the solid waste management facility has submitted to the director:

a. An acknowledgment that the owner or operator is familiar with state and federal law and regulations pertaining to solid waste management facilities operating after October 9, 1993, including post-closure care, corrective action and financial responsibility requirements;

b. A statement signed by a registered professional engineer that he has reviewed the regulations established by the department for solid waste management facilities, including the open dump

criteria contained therein, that he has inspected the facility and examined the monitoring data compiled for the facility in accordance with applicable regulations and that, on the basis of his inspection and review, he has concluded:

- (1) That the facility is not an open dump;
- (2) That the facility does not pose a substantial present or potential hazard to human health and the environment; and
- (3) That the leachate or residues from the facility do not pose a threat of contamination or pollution of the air, surface water or ground water in a manner constituting an open dump or resulting in a substantial present or potential hazard to human health or the environment; and

c. A statement signed by the owner or operator:

- (1) That the facility complies with applicable financial assurance regulations; and
- (2) Estimating when the facility will reach its vertical design capacity.

3. Enlargement or Closure of facilities.

a. The facility may not be enlarged prematurely to avoid compliance with this chapter when such enlargement is not consistent with past operating practices, the permit or modified operating practices to ensure good management.

b. The facility shall not dispose of solid waste in any portion of a disposal area that has received final cover or has not received waste for a period of one year, in accordance with 9 VAC 20-80-250.E. The facility shall notify the department, in writing, within 30 days, when an area has received final cover or has not received waste for a one-year period, in accordance with 9 VAC 20-80-250.E.

c. A facility may apply for a permit, and if approved, can construct and operate a new cell that overlays (“piggybacks”) over a closed area in accordance with the permit requirements of 9 VAC 20-80-250.

d. The facilities subject to the restrictions in 9 VAC 20-80-60.B are listed in Tables 2.1 and 2.2. The closure dates have already been established in: *Final Prioritization and Closure Schedule for HB 1205 Disposal Areas* (DEQ, September 2001). The publication of these tables is for the convenience of the regulated community and does not change established dates. Any facility, including, but not limited to those listed in Table 2.2, must cease operation if that facility meets any of the open dump criteria listed in 9 VAC 20-80-180.

e. Those facilities assigned a closure date in accordance with §10.1-1413.2 of the Code of Virginia shall designate on a map, plat, diagram or other engineered drawing, areas in which waste will be disposed until the latest cessation of waste acceptance date, as listed in Table 2.2, is achieved. This map or plat shall be placed in the operating record and a copy shall be submitted to the department for its records.

TABLE 2.1

House Bill (HB) 1205 Landfills in Post-Closure Care

Solid Waste Permit Number	Site Name	Location	Department Regional Office ¹	Date Post-Closure Care Commenced

<u>21</u>	<u>Jolivue Landfill</u>	<u>Augusta County</u>	<u>VRO</u>	<u>12/16/05</u>
<u>62</u>	<u>Rockingham County Sanitary Landfill</u>	<u>Rockingham County</u>	<u>VRO</u>	<u>06/24/05</u>
<u>125</u>	<u>Ivy Sanitary Landfill</u>	<u>Albemarle County</u>	<u>VRO</u>	<u>08/06/04</u>
<u>314</u>	<u>Hanover County – 301 Solid Waste Facility</u>	<u>Hanover County</u>	<u>PRO</u>	<u>01/12/04</u>
<u>397</u>	<u>Montgomery Regional Solid Waste Authority Sanitary Landfill</u>	<u>Montgomery County</u>	<u>WCRO</u>	<u>04/22/02</u>
<u>469</u>	<u>Shenandoah County Sanitary Landfill</u>	<u>Shenandoah County</u>	<u>VRO</u>	<u>01/07/05</u>
<u>589³</u> (formerly #74)	<u>R-Board Sanitary Landfill</u>	<u>Stafford County</u>	<u>NVRO</u>	<u>08/29/02</u>

TABLE 2.2

Final Prioritization and Closure Schedule For House Bill (HB) 1205 Disposal Areas

Solid Waste Permit Number and Site Name	Location	Department Regional Office ¹	Latest Cessation of Waste Acceptance Date ²
<u>429 - Fluvanna County Sanitary Landfill</u>	<u>Fluvanna County</u>	<u>VRO</u>	<u>12/31/2007</u>
<u>92 - Halifax County Sanitary Landfill³</u>	<u>Halifax County</u>	<u>SCRO</u>	<u>12/31/2007</u>
<u>49 - Martinsville Landfill</u>	<u>City of Martinsville</u>	<u>WCRO</u>	<u>12/31/2007</u>
<u>14 - Mecklenburg County Landfill</u>	<u>Mecklenburg County</u>	<u>SCRO</u>	<u>12/31/2007</u>
<u>228 - Petersburg City Landfill³</u>	<u>City of Petersburg</u>	<u>PRO</u>	<u>12/31/2007</u>
<u>31 - South Boston Sanitary Landfill</u>	<u>Town of South Boston</u>	<u>SCRO</u>	<u>12/31/2007</u>
<u>204 - Waynesboro City Landfill</u>	<u>City of Waynesboro</u>	<u>VRO</u>	<u>12/31/2007</u>
<u>91 - Accomack County Landfill – Bobtown South</u>	<u>Accomack County</u>	<u>TRO</u>	<u>12/31/2012</u>
<u>580 - Big Bethel Landfill</u>	<u>City of Hampton</u>	<u>TRO</u>	<u>12/31/2012</u>
<u>182 - Caroline County Landfill</u>	<u>Caroline County</u>	<u>NVRO</u>	<u>12/31/2012</u>
<u>149 - Fauquier County Landfill</u>	<u>Fauquier County</u>	<u>NVRO</u>	<u>12/31/2012</u>

<u>405 - Greenville County Landfill</u>	<u>Greenville County</u>	<u>PRO</u>	<u>12/31/2012</u>
<u>29 - Independent Hill Landfill³</u>	<u>Prince William County</u>	<u>NVRO</u>	<u>12/31/2012</u>
<u>1 - Loudoun County Sanitary Landfill</u>	<u>Loudoun County</u>	<u>NVRO</u>	<u>12/31/2012</u>
<u>194 - Louisa County Sanitary Landfill</u>	<u>Louisa County</u>	<u>NVRO</u>	<u>12/31/2012</u>
<u>227 - Lunenburg County Sanitary Landfill</u>	<u>Lunenburg County</u>	<u>SCRO</u>	<u>12/31/2012</u>
<u>507 - Northampton County Landfill</u>	<u>Northampton County</u>	<u>TRO</u>	<u>12/31/2012</u>
<u>90 - Orange County Landfill</u>	<u>Orange County</u>	<u>NVRO</u>	<u>12/31/2012</u>
<u>75 - Rockbridge County Sanitary Landfill</u>	<u>Rockbridge County</u>	<u>VRO</u>	<u>12/31/2012</u>
<u>23 - Scott County Landfill</u>	<u>Scott County</u>	<u>SWRO</u>	<u>12/31/2012</u>
<u>587 - Shoosmith Sanitary Landfill³</u>	<u>Chesterfield County</u>	<u>PRO</u>	<u>12/31/2012</u>
<u>417 - Southeastern Public Service Authority Landfill</u>	<u>City of Suffolk</u>	<u>TRO</u>	<u>12/31/2012</u>
<u>461 - Accomack County Landfill #2</u>	<u>Accomack County</u>	<u>TRO</u>	<u>12/31/2020</u>
<u>86 - Appomattox County Sanitary Landfill</u>	<u>Appomattox County</u>	<u>SCRO</u>	<u>12/31/2020</u>
<u>582 - Botetourt County Landfill³</u>	<u>Botetourt County</u>	<u>WCRO</u>	<u>12/31/2020</u>
<u>498 - Bristol City Landfill</u>	<u>City of Bristol</u>	<u>SWRO</u>	<u>12/31/2020</u>
<u>72 - Franklin County Landfill</u>	<u>Franklin County</u>	<u>WCRO</u>	<u>12/31/2020</u>
<u>398 - Virginia Beach Landfill #2 – Mount Trashmore II³</u>	<u>City of Virginia Beach</u>	<u>TRO</u>	<u>12/31/2020</u>

NOTES:

1. Department of Environmental Quality Regional Offices:

NVRO Northern Virginia Regional Office

PRO Piedmont Regional Office

SCRO South Central Regional Office

SWRO Southwest Regional Office

TRO Tidewater Regional Office

VRO Valley Regional Office

WCRO West Central Regional Office

2. This date means the latest date that the disposal area must cease accepting waste.

3. A portion of these facilities operated under HB 1205 and another portion currently is compliant with Subtitle D requirements.

C. Facilities are authorized to expand laterally beyond the waste boundaries existing on October 9, 1993, as follows:

1. Existing captive industrial landfills.

a. Existing nonhazardous industrial waste facilities that are located on property owned or controlled by the generator of the waste disposed of in the facility shall comply with all the provisions of this chapter except as shown in subdivision 1 of this subsection.

b. Facility owners or operators shall not be required to amend their facility permit in order to expand a captive industrial landfill beyond the waste boundaries existing on October 9, 1993. Liners and leachate collection systems constructed beyond the waste boundaries existing on October 9, 1993 shall be constructed in accordance with the requirements in effect at the time of permit issuance.

c. Owners or operators of facilities which are authorized under subdivision 1 of this subsection to accept waste for disposal beyond the waste boundaries existing on October 9, 1993, shall ensure that such expanded disposal areas maintain setback distances applicable to such facilities in 9VAC20-80-270 A.

d. Facilities authorized for expansion in accordance with subdivision 1 of this subsection are limited to expansion to the limits of the permitted disposal area existing on October 9, 1993, or the facility boundary existing on October 9, 1993, if no discrete disposal area is defined in the facility permit.

2. Other existing industrial waste landfills.

a. Existing nonhazardous industrial waste facilities that are not located on property owned or controlled by the generator of the waste disposed of in the facility shall comply with all the provisions of this chapter except as shown in subdivision 2 of this subsection.

b. Facility owners or operators shall not be required to amend their facility permit in order to expand an industrial landfill beyond the waste boundaries existing on October 9, 1993. Liners and leachate collection systems constructed beyond the waste boundaries existing on October 9, 1993, shall be constructed in accordance with the requirements of 9VAC20-80-270 B.

c. Prior to the expansion of any such facility, the owner or operator submits to the department a written notice of the proposed expansion at least 60 days prior to commencement of construction. The notice shall include recent ground water monitoring data sufficient to determine that the facility does not pose a threat of contamination of ground water in a manner constituting an open dump or

creating a substantial present or potential hazard to human health or the environment (see 9VAC20-80-180 B 4). The director shall evaluate the data included with the notification and may advise the owner or operator of any additional requirements that may be necessary to ensure compliance with applicable laws and prevent a substantial present or potential hazard to health or the environment.

d. Owners or operators of facilities which are authorized under subdivision 2 of this subsection to accept waste for disposal beyond the waste boundaries existing on October 9, 1993, shall ensure that such expanded disposal areas maintain setback distances applicable to such facilities in 9VAC20-80-270 A.

e. Facilities authorized for expansion in accordance with this subsection are limited to expansion to the limits of the permitted disposal area existing on October 9, 1993, or the facility boundary existing on October 9, 1993, if no discrete disposal area is defined in the facility permit.

3. Existing construction/demolition/debris landfills.

a. Existing facilities that accept only construction/demolition/debris waste shall comply with all the provisions of this chapter except as shown in subdivision 3 of this subsection.

b. Facility owners or operators shall not be required to amend their facility permit in order to expand a construction/demolition/debris landfill beyond the waste boundaries existing on October 9, 1993.

Liners and leachate collection systems constructed beyond the waste boundaries existing on October 9, 1993, shall be constructed in accordance with the requirements of 9VAC20-80-260 B.

c. Prior to the expansion of any such facility, the owner or operator submits to the department a written notice of the proposed expansion at least sixty days prior to commencement of construction. The notice shall include recent ground water monitoring data sufficient to determine that the facility does not pose a threat of contamination of ground water in a manner constituting an open dump or creating a substantial present or potential hazard to human health or the environment (see 9VAC20-

80-180 B 4). The director shall evaluate the data included with the notification and may advise the owner or operator of any additional requirements that may be necessary to ensure compliance with applicable laws and prevent a substantial present or potential hazard to health or the environment.

d. Owners or operators of facilities which are authorized under this subdivision 3 to accept waste for disposal beyond the active portion of the landfill existing on October 9, 1993, shall ensure that such expanded disposal areas maintain setback distances applicable to such facilities in 9VAC20-80-260 A and B.

e. Facilities, or portions thereof, which have reached their vertical design capacity shall be closed in compliance with 9VAC20-80-260 E.

f. Facilities authorized for expansion in accordance with subdivision 2 c of this subsection are limited to expansion to the permitted disposal area existing on October 9, 1993, or the facility boundary existing on October 9, 1993, if no discrete disposal area is defined in the facility permit.

4. Facilities or units undergoing expansion in accordance with the partial exemptions created by subdivision 1 b, 2 b, or 3 b of this subsection may not receive hazardous wastes generated by the exempt small quantity generators as defined by the Virginia Hazardous Waste Management Regulations (9VAC20-60), wastes containing free liquids for disposal on the expanded portions of the facility. Other wastes that require special handling in accordance with the requirements of Part VIII (9VAC20-80-630 et seq.) of this chapter or which contain hazardous constituents which would pose a risk to health or environment, may only be accepted with specific approval by the director.

5. Nothing in subdivisions 1 b, 2 b, and 3 b of this subsection shall alter any requirement for ground water monitoring, financial responsibility, operator certification, closure, post-closure care, operation, maintenance or corrective action imposed under this chapter, or impair the powers of the

director to revoke or amend a permit pursuant to §10.1-1409 of the Virginia Waste Management Act or Part VII (9VAC20-80-480 et seq.) of this chapter.

D. An owner or operator of a previously unpermitted facility that managed materials previously exempt from this chapter shall submit a complete application for a solid waste management facility permit or a permit amendment in accordance with Part VII of this chapter within six months after these materials have been defined or identified as solid wastes. If the director finds that the application is complete, the owner or operator may continue to manage the newly defined or identified waste until a permit or permit amendment decision has been rendered or until a date two years after the change in definition whichever occurs sooner, provided however, that in so doing he shall not operate or maintain an open dump, a hazard, or a nuisance.

The owner or operator of an existing solid waste management facility shall comply with this regulation beginning September 24, 2003. Where necessary conflicts exist between the existing facility permit and the new requirements of the regulations, the regulations shall supersede the permit except where the standards in the permit are more stringent than the regulation. Language in an existing permit shall not act as a shield to compliance with the regulation, unless a variance to the regulations has been approved by the director in accordance with the provisions of Part IX (9VAC20-80-730 et seq.) of this chapter. Existing facility permits will not be required to be updated to eliminate requirements conflicting with the regulation, except at the request of the director or if a permit is amended for another reason. However, all sanitary landfills and incinerators that accept waste from jurisdictions outside of Virginia must submit the materials required under 9VAC20-80-113 D by March 22, 2004.

E. Conditional exemptions. The following solid waste management practices are exempt from this chapter provided no open dump, hazard, or public nuisance is created:

1. Composting of sewage sludge at the sewage treatment plant of generation without addition of other types of solid wastes.
2. Composting of household waste generated at a single-family residence at the site of generation.
3. Composting activities performed for educational purposes as long as no more than five tons of materials are on site at any time. Greater quantities will be allowed with suitable justification presented to the department. For quantities greater than five tons approval from the director will be required prior to composting.
4. Management of wastes regulated by the State Board of Health, the State Water Control Board, or any other state agency with such authority.
5. On-site management of soil contaminated with petroleum products required as part of an ongoing corrective action by the department under Article 9 (§62.1-44.34:8 et seq.) or Article 11 (§62.1-44.34:14 et seq.) of Chapter 3.1 of Title 62.1 of the Code of Virginia. Management of the contaminated soils away from the site of generation is subject to this chapter unless specifically provided for in the approved corrective action plan.
6. Management of solid waste in appropriate containers at the site of its generation, provided that:
 - a. Putrescible waste is not stored more than seven days between time of collection and time of removal for disposal; and
 - b. All nonputrescible wastes that are on a system of regularly scheduled collection for disposal with collections occurring at intervals of less than 90 days.
7. Landfilling of solid waste which includes only rocks, brick, block, dirt, broken concrete and road pavement and which contains no paper, yard, or wood wastes.
8. On-site management of solid wastes generated by the wastewater treatment facilities provided such management is subject to a regulation promulgated by the State Water Control Board.

9. Placing of stumps and other land clearing debris from agricultural or forestal activities on site of the clearing where no debris is accepted from off-site. This does not include the burial of these materials.

10. Placing of solid wastes including large tires from mining equipment from mineral mining activities on a mineral mining site in compliance with a permit issued by the Department of Mines, Minerals and Energy where no such waste is accepted from off-site and does not contain any municipal solid wastes or other special wastes. Placement of such solid wastes shall be accomplished in an environmentally sound manner.

11. Storage of less than 100 waste tires at the site of generation provided that no waste tires are accepted from off-site and that the storage will not present a hazard or a nuisance.

12. The storage of land clearing debris including stumps and brush, clean wood wastes, log yard scrapings consisting of a mixture of soil and wood, cotton gin trash, peanut hulls and similar organic wastes that do not readily decompose, in piles are exempt from this chapter if they meet the following conditions at a minimum:

a. The wastes are managed in the following manner:

- (1) They do not cause discharges of leachate, or attract vectors.
- (2) They cannot be dispersed by wind and rain.
- (3) Combustion and fire are prevented.
- (4) They do not become putrescent.

b. Any facility storing waste materials under the provisions of this section obtains a storm water discharge permit if they are considered a significant source under the provisions of 9VAC25-31-120

A 1 e.

c. No more than an total of 1/3 acre of waste material is stored on-site and the waste pile does not exceed 15 feet in height above base grade.

d. Siting provisions.

(1) All waste materials are stored at the site of the industrial activity that produces them.

(2) A 50-foot fire break is maintained between the wastepile and any structure or treeline.

(3) The slope of the ground within the area of the pile and within 50 feet of the pile does not exceed 4:1.

(4) No waste material may be stored closer than 50 feet to any regularly flowing surface water body or river, floodplain, or wetland.

(5) No stored waste materials shall extend closer than 50 feet to any property line.

e. If the industrial activities at the site cease, any waste stored at the site must be properly disposed in a permitted solid waste management facility within 90 days. The director can approve longer time frames with appropriate justification. Justification must be provided in writing no more than 30 days after ceasing industrial activity at the site.

f. Waste piles that do not meet these provisions are required to obtain a permit in accordance with the provisions in 9VAC20-80-480 and meet all of the requirements in 9VAC20-80-400. Facilities that do not comply with the provisions of this subdivision and fail to obtain a permit are subject to the provisions of 9VAC20-80-90 for unpermitted facilities.

F. This chapter is not applicable to units or facilities closed in accordance with regulations or permits in effect prior to December 21, 1988, unless releases, as defined in Part I (9VAC20-80-10 et seq.) of this chapter, from such closed facilities cause the site to be classified as an open dump, a hazard or a nuisance under §10.1-1402(21) of the Code of Virginia, or a site where improper waste management has occurred under §10.1-1402(19) of the Code of Virginia.

Statutory Authority

§10.1-1402 of the Code of Virginia.

Part V

Solid Waste Disposal Facility Standards

9VAC20-80-250. Sanitary landfill.

The provisions of this section shall apply to the siting, design, construction, operation, monitoring, and closure of a sanitary landfill.

A. Siting.

1. Airport safety.

a. Owners or operators of all sanitary landfills that are located within 10,000 feet of any airport runway end used by turbojet aircraft or within 5,000 feet of any airport runway end used by only piston-type aircraft shall demonstrate that the units are designed and operated so that the facility does not pose a bird hazard to aircraft.

b. Owners or operators proposing to site new sanitary landfill and lateral expansions of an existing facility within a five mile radius of any airport runway end used by turbojet or piston-type aircraft shall notify the affected airport and the Federal Aviation Administration (FAA). Owners and operators should also be aware that effective April 5, 2000, 49 USC §44718 (d), restricts the establishment of landfills within six miles of public airports under certain conditions. Provisions for exemptions from this law also exist.

c. The owner or operator of an existing facility shall submit the demonstration in subdivision 1 a of this subsection to the director by October 9, 1993.

2. Floodplains. Owners or operators of all sanitary landfills located in 100-year floodplains shall demonstrate that the facility will not restrict the flow of the 100-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. The owner or operator of an existing facility shall submit the demonstration to the director by October 9, 1993. No new sanitary landfill after July 1, 1999 shall be constructed in a 100-year flood plain.

3. Unstable areas.

a. Owners or operators of all sanitary landfills located in an unstable area shall demonstrate that engineering measures have been incorporated into the facility's design to ensure that the integrity of the structural components of the facility will not be disrupted. He shall consider the following factors, at a minimum, when determining whether an area is unstable:

(1) On-site or local soil conditions that may result in differential settling and subsequent failure of structural components;

(2) On-site or local geologic or geomorphologic features that may result in sudden or non-sudden events and subsequent failure of structural components; and

(3) On-site or local man-made features or events (both surface and subsurface) that may result in sudden or non-sudden events and subsequent failure of structural components.

b. The owner or operator of an existing facility shall submit the demonstration to the director by October 9, 1993.

4. Wetlands.

a. After July 1, 1999, new sanitary landfills and lateral expansions of existing facilities, except those impacting less than 1.25 acres of nontidal wetlands, shall not be constructed in any tidal wetland or nontidal wetland contiguous to any surface water body.

b. Construction allowed under the provisions of §10.1-1408.5 will be allowed only with appropriate approvals under the provisions of 9VAC25-210. In addition, the following additional demonstrations must be made to the director:

(1) Where applicable under §404 of the Clean Water Act or §62.1-44.15:5 of the Virginia wetlands laws, the presumption that a practicable alternative to the proposed landfill is available that does not involve wetlands is clearly rebutted;

(2) The construction and operation of the facility will not:

(a) Cause or contribute to violations of any applicable water quality standard;

(b) Violate any applicable toxic effluent standard or prohibition under §307 of the Clean Water Act;

(c) Jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of a critical habitat, protected under the Endangered Species Act of 1973; and

(d) Violate any requirement under the Marine Protection, Research, and Sanctuaries Act of 1972 for the protection of a marine sanctuary;

(3) The facility will not cause or contribute to significant degradation of wetlands. The owner or operator shall demonstrate the integrity of the facility and its ability to protect ecological resources by addressing the following factors:

(a) Erosion, stability, and migration potential of native wetland soils, muds and deposits used to support the facility;

(b) Erosion, stability, and migration potential of dredged and fill materials used to support the facility;

(c) The volume and chemical nature of the waste managed in the facility;

(d) Impacts on fish, wildlife, and other aquatic resources and their habitat from release of the solid waste;

(e) The potential effects of catastrophic release of waste to the wetland and the resulting impacts on the environment; and

(f) Any additional factors, as necessary, to demonstrate that ecological resources in the wetland are sufficiently protected.

(4) To the extent required under §404 of the Clean Water Act or applicable Virginia wetlands laws, steps have been taken to attempt to achieve no net loss of wetlands (as defined by acreage and function) by first avoiding impacts to wetlands to the maximum extent practicable as required by subdivision 4 b (1) of this subsection, then minimizing unavoidable impacts to the maximum extent practicable, and finally offsetting remaining unavoidable wetland impacts through all appropriate and practicable compensatory mitigation actions (e.g., restoration of existing degraded wetlands or creation of man-made wetlands); and

(5) Sufficient other information is available to enable the department to make a reasonable determination with respect to these demonstrations.

5. Fault areas. New sanitary landfills and lateral expansions of existing facilities shall not be located within 200 feet of a fault that has had displacement in Holocene time unless the owner or operator demonstrates to the director that an alternative setback distance of less than 200 feet will prevent damage to the structural integrity of the facility and will be protective of human health and the environment.

6. Seismic impact zones. New sanitary landfills and lateral expansions of existing facilities shall not be located in seismic impact zones, unless the owner or operator demonstrates to the director that all containment structures, including liners, leachate collection systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site.

7. No sanitary landfill disposal unit or leachate storage unit shall extend closer than:

a. 100 feet of any regularly flowing surface water body or river;

- b. 50 feet from the facility boundary;
- c. 500 feet of any well, spring or other ground water source of drinking water in existence at the time of application;
- d. One thousand feet from the nearest edge of the right-of-way of any interstate or primary highway or 500 feet from the nearest edge of the right-of-way of any other highway or city street except the following:
 - (1) Units which are screened by natural objects, plantings, fences, or other appropriate means so as to minimize the visibility from the main-traveled way of the highway or city street, or otherwise removed from sight;
 - (2) Units which are located in areas which are zoned for industrial use under authority of state law or in unzoned industrial areas as determined by the Commonwealth Transportation Board;
 - (3) Units which are not visible from the main-traveled way of the highway or city street.

NOTE: This requirement is based on §33.1-348 of the Code of Virginia. The regulatory responsibility for this standard rests with the Virginia Department of Transportation.

- e. 200 feet from the active filling areas to any residence, school, hospital, nursing home or recreational park area in existence at the time of application.

NOTE: All distances are to be measured in the horizontal plane.

8. No new facility shall be located in areas where ground water monitoring cannot be conducted in accordance with subsection D of this section unless this requirement is suspended by the director pursuant to subdivision 1 c of this subsection.

9. No new sanitary landfill shall be constructed:

- a. Within five miles upgradient of any existing surface or ground water public water supply intake or reservoir except as allowed under the provisions of §10.1-1408.4 B 3 of the Code of Virginia;

- b. In any area vulnerable to flooding resulting from dam failures;
- c. Over a sinkhole or less than 100 feet over a solution cavern associated with karst topography;
- d. In any park or recreational area, wildlife management area or area designated by the federal or state agency as the critical habitat of any endangered species; or
- e. Over an active fault.

10. Certain site characteristics may also prevent approval or require substantial limitations on the site use or require incorporation of sound engineering controls. Examples include but are not limited to:

- a. Excessive slopes (greater than 33%);
- b. Lack of daily cover materials;
- c. Springs, seeps, or other ground water intrusion into the site;
- d. The presence of gas, water, sewage, or electrical or other transmission lines under the site; or
- e. The prior existence on the site of an open dump, unpermitted landfill, lagoon, or similar unit, even if such a unit is closed, will be considered a defect in the site unless the proposed unit can be isolated from the defect by the nature of the unit design and the ground water for the proposed unit can be effectively monitored.

11. Specific site conditions may be considered in approving an exemption of a site from the siting restrictions of subdivision 10 of this subsection.

12. Facilities unable to furnish the demonstration required under subdivision 1 c, 2, or 3 b of this subsection shall close in accordance with the requirements of subsection E of this section and initiate post-closure care as required by subsection F of this section by October 9, 1996.

13. The deadline for closure required by subdivision 12 of this subsection may be extended by the director up to two years if the owner or operator demonstrates that:

a. There is no alternate disposal capacity; and

b. There is no immediate threat to human health and the environment.

B. Design/construction. The following design and construction requirements apply to all sanitary landfills:

1. All facilities shall be surrounded by a means of controlling vehicular access and preventing illegal disposal. All access will be limited by gates, and such gates shall be securable and equipped with locks.

2. Access roads extending from the public road to the entrance of a facility or site and any public access area shall be all-weather, and shall be provided with a base capable of withstanding anticipated heavy vehicle loads.

3. Each solid waste disposal facility should be provided with an adequately lighted and heated shelter where operating personnel can exercise site control and have access to essential sanitation facilities. Lighting, heat and sanitation facilities may be provided by portable equipment as necessary.

4. Aesthetics shall be considered in the design of a facility or site. Use of artificial or natural screens shall be incorporated into the design for site screening and noise attenuation to less than 80 dBA at the facility boundary. The design should reflect those requirements, if any, that are determined from the long-range plan for the future use of the site.

5. All sanitary landfills shall be equipped with permanent or mobile telephone or radio communications.

6. All facilities shall be designed to provide and maintain:

a. A run-on control system to prevent flow onto the active portion of the landfill during the peak discharge from a 25-year storm;

b. A run-off control system from the active portion of the landfill to collect and control at least the water volume resulting from a 24-hour, 25-year storm. Run-off from the active portion of the landfill unit shall be handled in a manner that will not cause the discharge of:

(1) Pollutants into waters of the United States, including wetlands, that violates any requirements of the Clean Water Act, including, but-not limited to, the Virginia Pollutant Discharge Elimination system (VPDES) requirements; and

(2) Cause the discharge of a nonpoint source of pollution to waters of the United States, including wetlands, that violates any requirement of an area-wide or state-wide water quality management plan that has been approved under section 208 or 319 of the Clean Water Act, as amended.

c. Drainage structures to prevent ponding and erosion, and to minimize infiltration of water into solid waste cells.

7. A ground water monitoring system shall be installed at all sanitary landfills in accordance with 9VAC20-80-300.

8. Each site design shall include a gas management system to control decomposition gases generated within a sanitary landfill in accordance with 9VAC20-80-280.

9. All sanitary landfills shall be underlain by a composite liner system as follows:

a. Base preparation to protect the liner by preventing liner failure through subsidence or structural failure of the liner system.

b. A lower liner consisting of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than 1×10^{-7} cm/sec.

c. An upper component consisting of a minimum 30-mil flexible membrane liner (FML). If high density polyethylene (HDPE) is used as an FML, it shall be at least 60-mil thick. The FML component shall be:

- (1) Installed in direct and uniform contact with the compacted soil liner;
- (2) Placed in accordance with an approved construction quality control/quality assurance program submitted with the design plans; and
- (3) Placed with a minimum of two percent slope for leachate drainage.

10. The applicant may submit a petition in accordance with 9VAC20-80-780 to allow for an alternate design of the liner system.

11. The design shall provide for leachate management which shall include its collection, treatment, storage, and disposal. Leachate control and monitoring systems are subject to the requirements in 9VAC20-80-290.

12. Landfill site designs shall provide sufficient area to allow for management of leachate. Leachate from a solid waste disposal facility shall not be permitted to drain or discharge into surface waters except when authorized under a VPDES permit issued by the State Water Control Board or otherwise approved by that agency.

13. Compacted lifts of deposited waste shall be designed for a height compatible with daily waste volumes keeping work face areas to a minimum and allowing for a daily compacted cover. Lift height is not recommended to exceed 10 feet for maximum compaction.

14. Final contours of the finished landfill shall be specified. Design of final contours shall consider subsequent site uses, existing natural contours, surface water management requirements, and the nature of the surrounding area. The final elevation of the landfill shall be limited by the structural capacity of the liner and leachate collection and removal system and by stability of foundation and slopes. The final contour shall not cause structural damage or collapse of the leachate collection system.

15. Finished side slopes shall be stable and be configured to adequately control erosion and runoff.

Slopes of 33% will be allowed provided that adequate runoff controls are established. Steeper slopes may be considered if supported by necessary stability calculations and appropriate erosion and runoff control features. All finished slopes and runoff management facilities shall be supported by necessary calculations and included in the design manual. The top slope shall be at least two percent after allowance for settlement to prevent ponding of water.

16. Two survey bench marks shall be established and maintained on the landfill site, and their location identified or recorded on drawings and maps of the facility.

17. Each sanitary landfill shall be constructed in accordance with approved plans, which shall not be subsequently modified without approval by the department.

18. Construction quality assurance program.

a. General.

(1) A construction quality assurance (CQA) program is required for all landfill units. The program shall ensure that the constructed unit meets or exceeds all design criteria and specifications in the permit. The program shall be developed and implemented under the direction of a CQA officer who is a registered professional engineer.

(2) The CQA program shall address the following physical components, where applicable:

(a) Foundations;

(b) Low-hydraulic conductivity soil liners;

(c) Synthetic membrane liners;

(d) Leachate collection and removal systems;

(e) Gas management components; and

(f) Final cover systems.

b. Written CQA plan. The owner or operator shall develop and implement a written CQA plan. The plan shall identify steps that will be used to monitor and document the quality of materials and the condition and manner of their installation. The CQA plan shall include:

- (1) Identification of applicable units, and a description of how they will be constructed.
- (2) Identification of key personnel in the development and implementation of the CQA plan, and CQA officer qualifications.
- (3) A description of inspection and sampling activities for all unit components identified in subdivision 18 a (2) of this subsection including observations and tests that will be used before, during, and after construction to ensure that the construction materials and the installed unit components meet the design specifications. The description shall cover: sampling size and locations; frequency of testing; data evaluation procedures; acceptance and rejection criteria for construction materials; plans for implementing corrective measures; and data or other information to be recorded.

c. Contents of program. The CQA program shall include observations, inspections, tests, and measurements sufficient to ensure:

- (1) Structural stability and integrity of all components of the unit identified in subdivision 18 a (2) of this subsection;
- (2) Proper construction of all components of the liners, leachate collection and removal system, gas management system, and final cover system, according to permit specifications and good engineering practices, and proper installation of all components (e.g., pipes) according to design specifications;
- (3) Conformity of all materials used with design and other material specifications.
- (4) The permeability of the liner soil. Soil liner construction will be demonstrated on a test pad where permeability will be confirmed using an in situ testing method.

d. Certification. Waste shall not be received in a landfill unit until the owner or operator has submitted to the department by certified mail or hand delivery a certification signed by the CQA officer that the approved CQA plan has been successfully carried out and that the unit meets the requirements of this section. Documentation supporting the CQA officer's certification shall be submitted to the department upon request. An additional engineer's certification is required under the provisions of 9VAC20-80-550 A 1.

C. Operation.

1. No hazardous wastes as defined by the Virginia Hazardous Waste Management Regulations (9VAC20-60) other wastes listed in 9VAC20-80-250 C 17, PCB waste or regulated medical waste shall be accepted at the landfill except as specifically authorized by the facility permit or by the director. The owner or operator shall implement an inspection program to be conducted by landfill personnel to detect and prevent disposal of such wastes. In addition to implementing the requirements of the control program for unauthorized waste in 9VAC20-80-113, the program shall include, at a minimum:

a. The procedures for the routine monitoring and observation of incoming waste at the working face of the landfill;

b. The procedures for random inspections of incoming loads to detect whether incoming loads contain regulated hazardous wastes, PCB wastes, regulated medical waste, or other unauthorized solid waste and ensure that such wastes are not accepted at the facility. The owner or operator shall inspect a minimum of 1.0% of the incoming loads of waste. In addition, if the facility receives waste generated outside of Virginia and the regulatory structure in that jurisdiction allows for the disposal or incineration of wastes as municipal solid waste that Virginia's laws and regulations prohibit or restrict, the facility shall inspect a minimum of 10% of the incoming loads of waste from that

jurisdiction. All facilities receiving waste generated outside of Virginia shall submit an evaluation consistent with 9VAC20-80-113 D;

c. Records of all inspections, to include at a minimum time and date of the inspection, the personnel involved, the hauler, the type of waste observed, the identity of the generator of the waste if it can be determined, the location of the facility where the waste was handled prior to being sent to the landfill and the results of the inspection. All records associated with unauthorized waste monitoring and incidents shall be retained on-site for a minimum of three years and shall be available for inspection by the department;

d. Training of facility personnel to recognize and manage regulated hazardous waste, PCB wastes, regulated medical waste, and other unauthorized solid wastes;

e. Notification of the department if a regulated hazardous waste, PCB waste, regulated medical waste or other unauthorized waste is discovered at the facility. This notification will be made orally as soon as possible, but no later than 24 hours after the occurrence and shall be followed within 10 days by a written report that includes a description of the event, the cause of the event, the time and date of the event and the actions taken to respond to the event; and

f. All regulated medical waste, PCB waste or other unauthorized solid waste that are detected at a facility shall be isolated from the incoming waste and properly contained until arrangements can be made for proper transportation for treatment or disposal at an approved facility.

2. Compaction and cover requirements.

a. Unless provided otherwise in the permit, solid waste shall be spread into two-foot layers or less and compacted at the working face, which shall be confined to the smallest area practicable.

b. Lift heights shall be sized in accordance with daily waste volumes. Lift height is not recommended to exceed 10 feet.

c. Daily cover consisting of six inches of compacted soil or other approved material shall be placed upon and maintained on all exposed solid waste prior to the end of each operating day, or at more frequent intervals if necessary, to control disease vectors, fires, odors, blowing litter, and scavenging. Alternate materials of an alternate thickness may be approved by the director if the owner or operator demonstrates that the alternate material and thickness control disease vectors, fires, odors, blowing litter, and scavenging without presenting a threat to human health and the environment. At least three days of acceptable cover soil or approved material at the average usage rate should be maintained at the landfill or readily available at all times.

d. Intermediate cover of at least six inches of additional compacted soil shall be applied and maintained whenever an additional lift of refuse is not to be applied within 30 days. Further, all areas with intermediate cover exposed shall be inspected as needed, but not less than weekly. Additional cover material shall be placed on all cracked, eroded, and uneven areas as required to maintain the integrity of the intermediate cover system.

e. Final cover construction will be initiated and maintained in accordance with the requirements of subdivision E 1 b of this section when the following pertain:

- (1) An additional lift of solid waste is not to be applied within one year.
- (2) Any area of a landfill attains final elevation and within 90 days after such elevation is reached. The director may approve alternate timeframes if they are specified in the facility's closure plan.
- (3) An entire landfill's permit is terminated for any reason, and within 90 days of such denial or termination.

f. Vegetative cover with proper support layers shall be established and maintained on all exposed final cover material within four months after placement, or as specified by the department when

seasonal conditions do not permit. Mowing will be conducted a minimum of twice a year or at a frequency suitable for the species of vegetative cover as specified in the facility permit.

g. Areas where waste has been disposed that have not received waste within 30 days will not have slopes exceeding the final cover slopes specified in the permit or 33%, whichever is least.

3. Access to a solid waste disposal facility shall be permitted only when an attendant is on duty and only during daylight hours, unless otherwise specified in the facility permit.

4. Disease vectors shall be controlled using techniques appropriate for the protection of human health and the environment.

5. Safety hazards to operating personnel shall be controlled through an active safety program consistent with the requirements of 29 CFR Part 1910.

6. Adequate numbers and types of properly maintained equipment shall be available to a facility for operation. Provision shall be made for substitute equipment to be available within 24 hours should the former become inoperable or unavailable. Operators with training appropriate to the tasks they are expected to perform and in sufficient numbers for the complexity of the site shall be on the site whenever it is in operation. Equipment and operators provided will not be satisfactory unless they ensure that the site is managed with a high degree of safety and effectiveness.

7. Owners or operators shall implement a gas management plan in accordance with 9VAC20-80-280 that will ensure that:

a. The concentration of methane gas generated by the facility does not exceed 25 percent of the lower explosive limit for methane in facility structures (excluding gas control or recovery system components); and

b. The concentration of methane gas does not exceed the lower explosive limit for methane at the facility boundary.

8. Burning waste.

a. Owners or operators shall ensure that the units do not violate any applicable requirements developed by the State Air Pollution Control Board or promulgated by the EPA administrator pursuant to §110 of the Clean Air Act, as amended (42 USC §§7401 to 7671q).

b. Open burning of solid waste, except for infrequent burning of agricultural wastes, silvicultural wastes, landclearing debris, diseased trees, or debris from emergency cleanup operations is prohibited. There shall be no open burning permitted on areas where solid waste has been disposed or is being used for active disposal.

9. The owner or operator shall be responsible for extinguishing any fires that may occur at the facility. A fire control plan will be developed which outlines the response of facility personnel to fires. The fire control plan will be provided as an attachment to the emergency contingency plan required under the provisions of 9VAC20-80-520 C 2 k. The fire control plan will be available for review upon request by the public.

10. Solid waste shall not be deposited in, nor shall it be permitted to enter any surface waters or ground waters.

11. Owners or operators shall maintain the run-on/runoff control systems designed and constructed in accordance with subdivision B 6 of this section.

12. Sanitary landfills shall not:

a. Cause a discharge of pollutants into waters of the United States, including wetlands, that violates any requirements of the Clean Water Act (33 USC §1251 et seq.), including, but not limited to, the Virginia Pollutant Discharge Elimination System (VPDES) requirements and Virginia Water Quality Standards (9VAC25-260).

b. Cause the discharge of a nonpoint source of pollution to waters of the United States, including wetlands, that violates any requirement of an area-wide or state-wide water quality management plan that has been approved under §208 or 319 of the Clean Water Act (33 USC §1251 et seq.), as amended or violates any requirement of the Virginia Water Quality Standards (9VAC25-260).

13. Housekeeping.

a. Litter and blowing paper shall be confined to refuse holding and operating areas by fencing or other suitable control means.

b. Dust and odors shall be controlled so they do not constitute nuisances or hazards.

c. Salvaging may be permitted by a solid waste disposal facility operator, but shall be controlled within a designated salvage area to preclude interference with operation of the facility and to avoid the creation of hazards or nuisances.

d. Fugitive dust and mud deposits on main off-site roads and access roads shall be minimized at all times to limit nuisances.

e. Internal roads in the landfill shall be maintained to be passable in all weather by ordinary vehicles. All operation areas and units shall be accessible; gravel or other finish materials are usually required to accomplish this. Provisions shall be made to prevent tracking of mud onto public roads by vehicles leaving the site.

f. The open working face of a landfill shall be kept as small as practicable, determined by the tipping demand for unloading.

g. A sanitary landfill which is located within 10,000 feet of any airport runway used for turbojet aircraft or 5,000 feet of any airport runway used by only piston type aircraft, shall operate in such a manner that the facility does not increase or pose additional bird hazards to aircraft.

h. All facility appurtenances listed in subsection B of this section shall be properly maintained. These appurtenances include, but are not limited to, access controls, shelters, communications equipment, run-on and run-off controls, gas and ground water systems, liner systems, leachate collection control systems and the landfill cap.

14. Ground water monitoring program meeting the requirements of subsection D of this section shall be implemented.

15. A corrective action program meeting the requirements of 9VAC20-80-310 is required whenever the ground water protection standard is exceeded.

16. Sanitary landfills may receive the following types of solid wastes subject to specific limitations in the permit:

a. Agricultural waste.

b. Ashes and air pollution control residues that are not classified as hazardous waste. Incinerator and air pollution control residues should be incorporated into the working face and covered at such intervals as necessary to prevent them from becoming airborne.

c. Commercial waste.

d. Compost.

e. Construction waste.

f. Debris waste.

g. Demolition waste.

h. Discarded material.

i. Garbage.

j. Household waste.

k. Industrial waste meeting all criteria contained herein.

l. Inert waste.

m. Institutional waste except regulated medical waste as specified in the Regulated Medical Waste Management Regulations (9VAC20-120).

n. Municipal solid waste.

o. Putrescible waste. Occasional animal carcasses may be disposed of within a sanitary landfill.

Large numbers (over 20 cy) of animal carcasses may be received with prior notification of the department. When large numbers of carcasses are received, they shall be placed in a separate area within the disposal unit and provided with a cover of compacted soil or other suitable material.

p. Refuse.

q. Residential waste.

r. Rubbish.

s. Scrap metal.

t. Sludges. Water treatment plant sludges containing no free liquid and stabilized, digested or heat treated wastewater treatment plant sludges containing no free liquid may be placed on the working face along with municipal solid wastes and covered with soil or municipal solid wastes. The quantities accepted should be determined by operational conditions encountered at the working face. For existing facilities without an adequate leachate collection system, only a limited quantity of sludge may be accepted. A maximum ratio of one ton of sludge per five tons of solid waste per day will be considered. Generation of leachate will be a basis for restriction of sludge disposal at such existing facilities.

u. Trash.

v. White goods. Provided that all white goods are free of chlorofluorocarbons and PCBs prior to placement on the working face.

w. Nonregulated hazardous wastes and treated wastes rendered nonhazardous by specific approval only.

x. Special wastes as approved by the director.

y. Waste oil that has been adequately adsorbed in the course of a site cleanup.

z. Vegetative waste.

aa. Yard waste.

17. Sanitary landfills may not receive the following wastes:

a. Free liquids.

(1) Bulk or noncontainerized liquid waste, unless:

(a) The waste is household waste; or

(b) The waste is leachate or gas condensate derived from that landfill and the facility is designed with a composite liner and leachate collection system as described in subdivision B 9 of this section and 9VAC20-80-290 B; or

(2) Containers holding liquid waste, unless:

(a) The container is a small container similar in size to that normally found in household waste;

(b) The container is designed to hold liquids for use other than storage; or

(c) The waste is household waste.

b. Regulated hazardous wastes.

c. Solid wastes, residues, or soils containing more than 1.0 ppb (parts per billion) TEF (dioxins).

d. Solid wastes, residues, or soils containing 50.0 ppm (parts per million) or more of PCB's except as allowed under the provisions of 9VAC20-80-650.

e. Unstabilized sewage sludge as defined by the Department of Health or sludges that have not been dewatered.

- f. Pesticide containers that have not been triple rinsed and crushed.
- g. Drums that are not empty, properly cleaned and opened.
- h. Contaminated soil unless approved by the director in accordance with the requirements of 9VAC20-80-630 or 9VAC20-80-700.

18. Reasonable records to include date, quantity by weight or volume, and origin shall be maintained on solid waste received and processed to fulfill the requirements of the Solid Waste Information and Assessment Program, the Control Program for Unauthorized Waste. Such information shall be made available to the department for examination or use when requested.

D. Ground water monitoring. Ground water monitoring program shall be instituted at all sanitary landfills in accordance with the requirements contained in 9VAC20-80-300.

E. Closure.

1. Closure criteria. All sanitary landfills shall be closed in accordance with the procedures set forth as follows:

a. The owner or operator shall close his facility in a manner that minimizes the need for further maintenance, and controls, minimizes or eliminates, to the extent necessary to protect human health and the environment, the post-closure escape of uncontrolled leachate, surface runoff, or waste decomposition products to the ground water, surface water, decomposition gas migration, or to the atmosphere.

b. Final cover system. Owner or operator of all sanitary landfills shall install a final cover system that is designed to achieve the performance requirements of subdivision 1 a of this subsection.

(1) The final cover system shall be designed and constructed to:

(a) Have an 18-inch infiltration layer with a hydraulic conductivity less than or equal to the hydraulic conductivity of any bottom liner system or natural subsoils present, or a hydraulic conductivity no greater than 1×10^{-5} cm/sec, whichever is less; and

(b) Minimize infiltration through the closed disposal unit by the use of an infiltration layer that is constructed of earthen material; and

(c) Minimize erosion of the final cover by the use of an erosion layer that contains a minimum of 6 inches of earthen material that is capable of sustaining native plant growth, and provide for protection of the infiltration layer from the effects of erosion, frost, and wind.

(2) Finished side slopes shall be stable and be configured to adequately control erosion and runoff.

Slopes of 33% will be allowed provided that adequate runoff controls are established. Steeper slopes may be considered if supported by necessary stability calculations and appropriate erosion and runoff control features. All finished slopes and runoff management facilities shall be supported by necessary calculations and included in the design manual. To prevent ponding of water, the top slope shall be at least two percent after allowance for settlement.

2. The director may approve an alternate final cover design that includes:

a. An infiltration layer that achieves an equivalent reduction in infiltration as the infiltration layer specified in subdivision 1 b (1) (a) of this subsection; and

b. An erosion layer that provides equivalent protection from wind and water erosion as the erosion layer specified in subdivision 1 b (1) (c) of this subsection.

3. Closure plan and amendment of plan.

a. The owner or operator of a solid waste disposal facility shall have a written closure plan. This plan shall identify the steps necessary to completely close the facility at the point of the permit period

when the operation will be the most extensive and at the end of its intended life. The closure plan shall include, at least:

(1) A description of those measures to be taken and procedures to be employed to comply with this subsection.

(2) An estimate of the largest area ever requiring a final cover as required at any time during the active life;

(3) An estimate of the maximum inventory of wastes ever on-site over the active life of the landfill facility; and

(4) A schedule for final closure which shall include, at a minimum, the anticipated date when wastes will no longer be received, the date when completion of final closure is anticipated, and intervening milestone dates which will allow tracking of the progress of closure.

b. The owner or operator may amend his closure plan at any time during the active life of the facility. The owner or operator shall so amend his plan any time changes in operating plans or facility design affects the closure plan. The amended closure plan shall be placed in the operating record.

c. The owner or operator shall notify the department whenever an amended closure plan has been prepared and placed in the operating record.

d. At least 180 days prior to beginning closure of each solid waste disposal unit, the owner or operator shall notify the department of the intent to close.

e. If the owner or operator intends to use an alternate final cover design, he shall submit a proposed design meeting the requirements of subdivision 2 of this subsection to the department at least 180 days before the date he expects to begin closure. The director will approve or disapprove the plan within 90 days of receipt.

f. Closure plans, and amended closure plans not previously approved by the director shall be submitted to the department at least 180 days before the date the owner or operator expects to begin construction activities related to closure. The director will approve or disapprove the plan within 90 days of receipt.

4. Time allowed for closure.

a. The owner or operator shall begin closure activities of each unit no later than 30 days after the date on which the unit receives the known final receipt of wastes or, if the unit has remaining capacity and there is a reasonable likelihood that the unit will receive additional wastes, no later than one year after the most recent receipt of wastes. Extensions beyond the one-year deadline for beginning closure may be granted by the director if the owner or operator demonstrates that the unit has the capacity to receive additional wastes and the owner or operator has taken and will continue to take all steps necessary to prevent threats to human health and the environment from the unclosed unit.

b. The owner or operator shall complete closure activities of each unit within six months following the beginning of closure. The director may approve a longer closure period if the owner or operator can demonstrate that the required or planned closure activities will, of necessity, take longer than six months to complete; and that the owner or operator has taken all steps to eliminate any significant threat to human health and the environment from the unclosed but inactive unit.

5. Closure implementation.

a. The owner or operator shall close each unit with a final cover as specified in subdivision 1 b of this subsection, grade the fill area to prevent ponding, and provide a suitable vegetative cover.

Vegetation shall be deemed properly established when there are no large areas void of vegetation and it is sufficient to control erosion.

b. Following construction of the final cover system for each unit, the owner or operator shall submit to the department a certification, signed by a registered professional engineer verifying that closure has been completed in accordance with the requirements of this part. This certification shall include the results of the CQA/QC requirements under subdivision B 18 a (2) (e) of this section.

c. The owner or operator shall properly bait the site for rodent and vector control before final closure is initiated.

d. Following the closure of all units the owner or operator shall:

(1) Post one sign at the entrance of the facility notifying all persons of the closing, and providing a notice prohibiting further receipt of waste materials. Further, suitable barriers shall be installed at former accesses to prevent new waste from being deposited.

(2) Within 90 days, submit to the local land recording authority a survey plat prepared by a professional land surveyor registered by the Commonwealth or a person qualified in accordance with Title 54.1 of the Code of Virginia indicating the location and dimensions of landfill disposal areas. Monitoring well locations should be included and identified by the number on the survey plat. The plat filed with the local land recording authority shall contain a note, prominently displayed, which states the owner's or operator's future obligation to restrict disturbance of the site as specified.

(3) Record a notation on the deed to the facility property, or on some other instrument which is normally examined during title searches, notifying any potential purchaser of the property that the land has been used to manage solid waste and its use is restricted under subdivision F 4 c of this section. A copy of the deed notation as recorded shall be filed with the department.

(4) Submit to the department a certification, signed by a registered professional engineer, verifying that closure has been completed in accordance with the requirements of subdivision 5 d (1) through 5 d (3) of this section and the facility closure plan.

6. Inspection. The department shall inspect all solid waste management units at the time of closure to confirm that the closing is complete and adequate. It shall notify the owner of a closed facility, in writing, if the closure is satisfactory, and shall require any construction or such other steps necessary to bring unsatisfactory sites into compliance with these regulations. Notification by the department that the closure is satisfactory does not relieve the operator of responsibility for corrective action to prevent or abate problems caused by the facility.

7. Post-closure period. The post-closure care period begins on the date of the certification signed by a registered professional engineer as required in subdivision 5 d (4) of this subsection. Unless a facility completes all provisions of subdivision 5 of this subsection, the department will not consider the facility closed, and the beginning of the post-closure care period will be postponed until all provisions have been completed. If the department's inspection required by subdivision 6 of this subsection reveals that the facility has not been properly closed in accordance with this part, post closure will begin on the date that the department acknowledges proper closure has been completed.

F. Post-closure care requirements.

1. Following closure of all disposal units, the owner or operator shall conduct post-closure care of the facility. Post-closure care shall consist of at least the following:

a. Maintaining the integrity and effectiveness of any final cover, including making repairs to the cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the final cover;

b. Maintaining and operating the leachate collection system in accordance with the requirements in 9VAC20-80-290 and 9VAC20-80-300. The director may allow the owner or operator to stop managing leachate if the owner or operator demonstrates that leachate no longer poses a threat to human health and the environment;

c. Monitoring the ground water in accordance with the requirements of subsection D of this section and maintaining the ground water monitoring system, if applicable; and

d. Maintaining and operating the gas monitoring system in accordance with the requirements of 9VAC20-80-280.

2. The post-closure care shall be conducted:

a. For 10 years in case of facilities that ceased to accept wastes before October 9, 1993; or

b. For 30 years in case of facilities that received wastes on or after October 9, 1993; or

c. As provided in subdivision 3 of this subsection.

3. The length of the post-closure care period may be:

a. Decreased by the director if the owner or operator demonstrates that the reduced period is sufficient to protect human health and the environment and this demonstration is approved by the director; or

b. Increased by the director if the director determines that the lengthened period is necessary to complete the corrective measures or to protect human health and the environment. If the post-closure period is increased, the owner or operator shall submit a revised post-closure plan for review and approval, and continue post-closure monitoring and maintenance in accordance with the approved plan.

4. The owner or operator shall prepare a written post-closure plan that includes, at a minimum, the following information:

a. A description of the monitoring and maintenance activities required in subdivision 1 of this subsection for each disposal unit, and the frequency at which these activities will be performed;

b. Name, address, and telephone number of the person or office to contact about the facility during the post-closure period; and

c. A description of the planned uses of the property during the post-closure period. Post-closure use of the property shall not disturb the integrity of the final cover, liners, or any other components of

the containment system, or the function of the monitoring systems unless necessary to comply with the requirements of this chapter. The director may approve any other disturbance if the owner or operator demonstrates that disturbance of the final cover, liner or other component of the containment system, including any removal of waste, will not increase the potential threat to human health or the environment.

5. The owner or operator shall submit a post-closure care plan for review and approval by the director whenever a post-closure care plan has been prepared or amended. Those post-closure care plans that have been placed in a facility's operating record must be reviewed and approved by the director prior to implementation.

6. Following completion of the post-closure care period for each disposal unit, the owner or operator shall submit to the department a certificate, signed by a registered professional engineer, verifying that post-closure care has been completed in accordance with the post-closure plan. The certificate shall be accompanied by an evaluation, prepared by a professional engineer licensed in the Commonwealth and signed by the owner or operator, assessing and evaluating the landfill's potential for harm to human health and the environment in the event that post-closure monitoring and maintenance are discontinued.

Statutory Authority

§10.1-1402 of the Code of Virginia, 42 USC §6941 et seq., and 40 CFR Part 258.

9VAC20-80-260. Construction/demolition/debris (CDD) landfills.

Construction/demolition/debris landfills may only receive demolition waste, construction waste, debris waste, land clearing debris, split tires, and white goods. No other wastes are authorized for the CDD landfill. Chloroflourocarbons and PCBs must be removed from white goods prior to placement on the working face.

A. Siting. The following criteria apply to all CDD landfills:

1. CDD landfills shall not be sited or constructed in areas subject to base floods unless it can be shown that the facility can be protected from inundation or washout and that the flow of water is not restricted.
2. CDD landfills shall not be sited in geologically unstable areas where inadequate foundation support for the structural components of the landfill exists. Factors to be considered when determining unstable areas shall include:
 - a. Soil conditions that may result in differential settling and subsequent failure of containment structures;
 - b. Geologic or geomorphologic features that may result in sudden or non-sudden events and subsequent failure of containment structures;
 - c. Man-made features or events (both surface and subsurface) that may result in sudden or non-sudden events and subsequent failure of containment structures;
 - d. Presence of sink holes within the disposal area.
3. Acceptable CDD landfill sites shall allow for adequate area and terrain for management of leachate if generated.

4. CDD landfill disposal area shall not be closer than 200 feet to any residence, school, hospital, nursing home or recreational park area.

5. CDD disposal or leachate storage unit may not be located closer than:

a. 100 feet of any regularly flowing surface water body or river;

b. 200 feet of any well, spring or other ground water source of drinking water; or

c. One thousand feet from the nearest edge of the right-of-way of any interstate or primary highway or 500 feet from the nearest edge of the right-of-way of any other highway or city street, except the following:

(1) Units which are screened by natural objects, plantings, fences, or other appropriate means so as to minimize the visibility from the main-traveled way of the highway or city street, or otherwise removed from sight;

(2) Units which are located in areas which are zoned for industrial use under authority of state law or in unzoned industrial areas as determined by the Commonwealth Transportation Board; or

(3) Units which are not visible from the main-traveled way of the highway or city street.

NOTE: This requirement is based on §33.1-348 of the Code of Virginia, which should be consulted for detail. The regulatory responsibility for this standard rests with the Virginia Department of Transportation.

6. Wetlands. New CDD landfills and lateral expansions of existing facilities shall not be located in wetlands, unless the owner or operator can make the following demonstrations to the director:

a. Where applicable under §404 of the Clean Water Act or applicable Virginia wetlands laws, the presumption is clearly rebutted that a practicable alternative to the proposed landfill exists that does not involve wetlands;

b. The construction and operation of the facility will not:

- (1) Cause or contribute to violations of any applicable water quality standard;
- (2) Violate any applicable toxic effluent standard or prohibition under §307 of the Clean Water Act;
- (3) Jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of a critical habitat, protected under the Endangered Species Act of 1973 (87 Stat. 884); and
- (4) Violate any requirement under the Marine Protection, Research, and Sanctuaries Act of 1972 (86 Stat. 1052) for the protection of a marine sanctuary;

c. The facility will not cause or contribute to significant degradation of wetlands. The owner or operator shall demonstrate the integrity of the facility and its ability to protect ecological resources by addressing the following factors:

- (1) Erosion, stability, and migration potential of native wetland soils, muds and deposits used to support the facility;
- (2) Erosion, stability, and migration potential of dredged and fill materials used to support the facility;
- (3) The volume and chemical nature of the waste managed in the facility;
- (4) Impacts on fish, wildlife, and other aquatic resources and their habitat from release of the solid waste;
- (5) The potential effects of catastrophic release of waste to the wetland and the resulting impacts on the environment; and
- (6) Any additional factors, as necessary, to demonstrate that ecological resources in the wetland are sufficiently protected;

d. To the extent required under §404 of the Clean Water Act or applicable Virginia wetlands laws, steps have been taken to attempt to achieve no net loss of wetlands (as defined by acreage and

function) by first avoiding impacts to wetlands to the maximum extent practicable as required by subdivision 6 a of this subsection, then minimizing unavoidable impacts to the maximum extent practicable, and finally offsetting remaining unavoidable wetland impacts through all appropriate and practicable compensatory mitigation actions (e.g., restoration of existing degraded wetlands or creation of man-made wetlands);

e. Furnish a copy of final determinations on subdivision 6 a through d of this subsection, obtained from the U.S. Army Corps of Engineers pertaining to federal jurisdictional wetlands; and

f. Sufficient other information to enable the department to make a reasonable determination with respect to these demonstrations.

7. No new facility shall be located in areas where ground water monitoring cannot be conducted in accordance with subsection D of this section. Factors to be considered in determining whether or not a site can be monitored shall include:

a. Ability to characterize the direction of ground water flow within the uppermost aquifer;

b. Ability to characterize and define any releases from the landfill so as to determine what corrective actions are necessary;

c. Ability to perform corrective action as necessary; and

d. Ability to install a double liner system with a leachate collection system above the top liner and a monitoring collection system between the two liners.

8. The following site characteristics may also prevent approval or require substantial limitations on the site use or require incorporation of sound engineering controls:

a. Excessive slopes (greater than 33%);

b. Lack of readily available cover materials on site, or lack of a firm commitment for adequate cover material from a borrow site;

- c. Springs, seeps, or other ground water intrusion into the site;
- d. The presence of gas, water, sewage, or electrical or other transmission lines under the site; or
- e. The prior existence on the site of an open dump, unpermitted landfill, lagoon, or similar unit, even if such a unit is closed, will be considered a defect in the site unless the proposed unit can be isolated from the defect by the nature of the unit design and the ground water for the proposed unit can be effectively monitored.

9. In strip mine pits, all coal seams and coal outcrops shall be isolated from solid waste materials by a minimum of five feet of natural or compacted soils with a hydraulic conductivity equal to or less than 1×10^{-7} cm/sec.

10. Specific site conditions may be considered in approving an exemption of a site from the siting restrictions of subdivisions 7 and 8 of this subsection.

B. Design/construction.

1. All CDD landfill facilities shall be surrounded on all sides by natural barriers, fencing, or an equivalent means of controlling vehicular access. All access will be limited to gates, and such gates shall be securable and equipped with locks.

2. Access roads extending from the public road to the entrance of a facility or site shall be all weather, and shall be provided with a base capable of withstanding anticipated heavy vehicle loads.

3. CDD landfill facilities should be provided with an adequately lighted and heated shelter where operating personnel have access to essential sanitation facilities. Lighting, sanitation facilities and heat may be provided by portable equipment as necessary.

4. Aesthetics shall be considered in the design of a facility or site. Use of artificial or natural screens shall be incorporated into the design for site screening and noise attenuation. The design should

reflect those requirements, if any, that are determined from the long-range plan for the future use of the site.

5. All CDD landfill facilities shall be equipped with permanent or mobile telephone or radio communications.

6. All CDD landfills shall be designed to divert surface water runoff from a 25-year, 24-hour storm away from disposal areas. The design shall provide that any surface water runoff is managed so that erosion is well controlled and environmental damage is prevented.

7. Each CDD landfill facility shall be constructed in accordance with approved plans, which shall not be subsequently modified without approval by the department.

8. A leachate collection system and removal system and leachate monitoring program shall be required as detailed in 9VAC20-80-290. Surface impoundments or other leachate storage structures shall be so constructed that discharge to ground water will not occur. Leachate derived from the CDD landfill may be recirculated provided the CDD disposal unit is designed with a composite liner as required by 9VAC20-80-250 B 9 and a leachate collection system as required by 9VAC20-80-290.

9. A decomposition gas venting system or gas monitoring program is required unless the owner or operator can demonstrate to the department that gas formation is not a problem at the permitted landfill. A venting system will be essential at any time the concentration of methane generated exceeds 25% of the lower explosive limit within any structure or at the facility boundary. When required, the control of the decomposition gases shall be carried out in accordance with 9VAC20-80-280.

10. Final contours of the finished landfill shall be specified. Design of final contours shall consider subsequent site uses, existing natural contours, surface water management requirements, and the

nature of the surrounding area. The final elevation of the landfill shall be limited by the structural capacity of the liner and leachate collection and removal system. The final contour shall not cause structural damage or collapse of the leachate collection system. Two survey bench marks shall be established and maintained on the landfill site, and their locations identified or recorded on drawings and maps of the facility.

11. A ground water monitoring system shall be installed at all new and existing CDD landfills in accordance with the requirements of 9VAC20-80-300.

12. Finished side slopes shall be stable and be configured to adequately control erosion and runoff. Slopes of 33% will be allowed provided that adequate runoff controls are established. Steeper slopes may be considered if supported by necessary stability calculations and appropriate erosion and runoff control features. All finished slopes and runoff management facilities shall be supported by necessary calculations and included in the design manual.

13. Solid waste disposal shall be at least 50 feet from the facility boundary.

14. All CDD landfills shall be underlain by a liner system as follows:

a. Compacted clay:

(1) A liner consisting of at least one-foot layer of compacted soil with a hydraulic conductivity of no more than 1×10^{-7} cm/sec.

(2) The liner shall be placed with a minimum of 2.0% slope for leachate drainage.

(3) The liner shall be covered with a minimum one-foot thick drainage layer composed of material having a hydraulic conductivity of 1×10^{-3} cm/sec or greater (lab tested).

b. Synthetic liners:

- (1) Synthetic liner consisting of a minimum 30-mil thick flexible membrane. If high density polyethylene is used, it shall be at least 60-mil thick. Synthetic liners shall be proven to be compatible with the solid waste and its leachate.
- (2) The liner shall be placed in accordance with an approved construction quality control/quality assurance program submitted with the design plans.
- (3) The base under the liner shall be a smooth rock-free base or otherwise prepared to prevent causing liner failure.
- (4) The liner shall be placed with a minimum of 2.0% slope for leachate drainage.
- (5) The liner shall be covered with a 12-inch thick drainage layer and a 6-inch thick protective layer, placed above the drainage layer, both materials having a hydraulic conductivity of 1×10^{-3} cm/sec or greater (lab tested).

c. Other liners:

- (1) Other augmented compacted clays or soils may be used as a liner provided the thickness is equivalent and the hydraulic conductivity will be equal to or less than that for compacted clay alone.
- (2) The effectiveness of the proposed augmented soil liner shall be documented by using appropriate laboratory tests.
- (3) Shall be placed with a minimum of 2.0% slope for leachate drainage.

d. In-place soil:

- (1) Where the landfill will be separated from the ground water by low hydraulic conductivity soil as indicated by appropriate laboratory tests, which is natural and undisturbed, and provides equal or better performance in protecting ground water from leachate contamination, a liner can be developed by manipulation of the soil to form a liner with equivalent thickness and hydraulic conductivity equal to or less than that of the clay liner.

(2) Shall be prepared with a minimum of 2.0% slope for leachate drainage.

e. Double liners required or used in lieu of ground water monitoring shall include:

(1) Base preparation to protect the liner.

(2) A bottom or secondary liner which is soil, synthetic or augmented soil as indicated in subdivisions 14 a, b, and c of this subsection.

(3) A witness or monitoring zone placed above the bottom or secondary liner consisting of a minimum of 12-inch thick drainage layer composed of material with a hydraulic conductivity of 1×10^{-3} cm/sec or greater with a network or perforated pipe, or an equivalent design.

(4) The primary liner as indicated in subdivision 14 a, b, and c of this subsection.

(5) The primary liner shall be covered with a minimum 12-inch thick drainage layer for leachate removal and a 6-inch thick protective layer placed above the drainage layer both materials having a hydraulic conductivity of 1×10^{-3} cm/sec or greater (lab tested).

15. If five-foot separation from seasonal high ground water can be demonstrated, a separate area may be established to receive only stumps, brush, leaves and land clearing debris. Such an area may be constructed without a liner or a leachate collection system, but may not receive any other solid waste.

16. A fire break of 50 feet shall be designed around the disposal area and all tree lines.

17. Construction quality assurance program.

a. General.

(1) A construction quality assurance (CQA) program is required for all landfill units. The program shall ensure that the constructed unit meets or exceeds all design criteria and specifications in the permit. The program shall be developed and implemented under the direction of a CQA officer who is a registered professional engineer.

(2) The CQA program shall address the following physical components, where applicable:

- (a) Foundations;
- (b) Low-hydraulic conductivity soil liners;
- (c) Synthetic membrane liners;
- (d) Leachate collection and removal systems; and
- (e) Final cover systems.

b. Written CQA plan. The owner or operator shall develop and implement a written CQA plan. The plan shall identify steps that will be used to monitor and document the quality of materials and the condition and manner of their installation. The CQA plan shall include:

- (1) Identification of applicable units, and a description of how they will be constructed.
- (2) Identification of key personnel in the development and implementation of the CQA plan, and CQA officer qualifications.
- (3) A description of inspection and sampling activities for all unit components identified in subdivision 17 a (2) of this subsection including observations and tests that will be used before, during, and after construction to ensure that the construction materials and the installed unit components meet the design specifications. The description shall cover: sampling size and locations; frequency of testing; data evaluation procedures; acceptance and rejection criteria for construction materials; plans for implementing corrective measures; and data or other information to be recorded.

c. Contents of program. The CQA program shall include observations, inspections, tests, and measurements sufficient to ensure:

- (1) Structural stability and integrity of all components of the unit identified in subdivision 17 a (2) of this subsection;

(2) Proper construction of all components of the liners, leachate collection and removal system, gas management system if required under subdivision 9 of this subsection and final cover system, according to permit specifications and good engineering practices, and proper installation of all components (e.g. pipes) according to design specifications;

(3) Conformity of all materials used with design and other material specifications; and

(4) The permeability of the liner soil. Soil liner construction will be demonstrated on a test pad where permeability will be confirmed using an in situ testing method.

d. Certification. Waste shall not be received in a landfill unit until the owner or operator has submitted to the department by certified mail or hand delivery a certification signed by the CQA officer that the approved CQA plan has been successfully carried out and that the unit meets the requirements of this section. Documentation supporting the CQA officer's certification shall be submitted to the department upon request. An additional certification is required under the provisions of 9VAC20-80-550 A 1.

C. Operation.

1. Access to a facility shall be permitted only when an attendant is on duty and only during daylight hours, unless otherwise specified in the permit for the facility.

2. Litter shall be confined to refuse holding and operating areas by fencing or other suitable means.

3. Dust, odors, and vectors shall be effectively controlled so they do not constitute nuisances or hazards.

4. Safety hazards to operating personnel shall be ~~prevented~~ controlled through an active safety program consistent with the requirements of 29 CFR Part 1910 .

5. Adequate numbers and types of properly maintained equipment shall be available to a facility for the performance of operation. Provision shall be made for substitute equipment to be available within 24 hours should the former become inoperable or unavailable.
6. Open burning shall be prohibited.
7. Solid waste shall not be deposited in, nor shall it be permitted to enter any surface waters or ground waters.
8. Salvaging may be permitted by a solid waste disposal facility operator, but shall be controlled within a designated salvage area to preclude interference with operation of the facility and to avoid the creation of hazards or nuisances.
9. Reasonable records shall be maintained on the amount of solid waste received and processed to include date, quantity by weight or volume, and origin. Such information shall be made available to the department for examination or use when requested.
10. Fire breaks shall be installed in layers periodically as established in the facility permit. Such fire breaks shall consist of borrow materials deemed suitable as intermediate cover, and shall be placed on the top, side slopes, and working faces of the fill to a depth of at least one foot. The requirements for fire breaks may be waived, however, if the waste materials are non-combustible. The owner or operator shall be responsible for extinguishing any fires that may occur at the facility. A fire control plan will be developed that outlines the response of facility personnel to fires. The fire control plan will be provided as an attachment to the emergency contingency plan required under the provisions of 9VAC20-80-520 C 2 k. The fire control plan will be available for review upon request by the public.
11. Compaction and cover requirements.

- a. Waste materials shall be compacted in shallow layers during the placement of disposal lifts to minimize differential settlement.
- b. Compacted soil cover shall be applied as needed for safety and aesthetic purposes. A minimum one-foot thick progressive cover shall be maintained weekly such that the top of the lift is fully covered at the end of the work week. A fire break as specified in subdivision 10 of this subsection will be installed on the top, side slopes, and on the work face as weekly progressive cover or as required in the facility permit. The open working face of a landfill shall be kept as small as practicable, determined by the tipping demand for unloading.
- c. When waste deposits have reached final elevations, or disposal activities are interrupted for 15 days or more, waste deposits shall receive a one-foot thick intermediate cover unless soil has already been applied in accordance with subdivision 11 b of this subsection and be graded to prevent ponding and to accelerate surface run-off.
- d. Final cover construction will be initiated in accordance with the requirements of subdivision E 1 b of this section upon the completion of disposal operations or when the following pertain:
 - (1) When operations are suspended for six months or more.
 - (2) Within 90 days of any area of the landfill reaching final elevation final cover construction will be initiated in that area. The director may approve alternate timeframes if they are specified in the facility's closure plan.
 - (3) If, for any reason, the permit is terminated, cover construction will be initiated within 90 days of termination.
- e. Vegetative cover with proper support layers shall be established and maintained on all exposed final cover material within four months after placement, or as otherwise specified by the department when seasonal conditions do not otherwise permit.

12. A ground water monitoring program meeting the requirements of subsection D of this section shall be implemented.

13. Corrective Action Program. A corrective action program meeting the requirements of 9VAC20-80-310 is required whenever the ground water protection standard is exceeded.

14. Leachate from a solid waste disposal facility shall not be permitted to drain or discharge into surface waters except when authorized under a VPDES permit issued pursuant to the State Water Control Board Regulation (9VAC25-31).

15. All items designed in accordance with the requirements of subsection B of this section shall be properly maintained.

D. Ground water monitoring program. A ground water monitoring program shall be instituted at all CDD landfills in accordance with the requirements contained in 9VAC20-80-300.

E. Closure.

1. Closure criteria. All CDD landfills shall be closed in accordance with the procedures set forth in this subdivision.

a. The owner or operator shall close his facility in a manner that minimizes the need for further maintenance, and controls, minimizes or eliminates the post-closure escape of uncontrolled leachate, surface runoff, decomposition gas migration, or waste decomposition products to the ground water, surface water, or to the atmosphere.

b. Final cover system. Except as specified in subdivision 1 c of this subsection, owner or operator of CDD landfills shall install a final cover system that is designed to achieve the performance requirements of subdivision 1 a of this subsection.

(1) The final cover system shall be designed and constructed to:

(a) Have a hydraulic conductivity less than or equal to the hydraulic conductivity of any bottom liner system or natural subsoils present, or a hydraulic conductivity no greater than 1×10^{-5} cm/sec, whichever is less; and

(b) Minimize infiltration through the closed disposal unit by the use of an infiltration layer that contains a minimum 18 inches of earthen material; and

(c) Minimize erosion of the final cover by the use of an erosion layer that contains a minimum of six inches of earthen material that is capable of sustaining native plant growth, and provide for protection of the infiltration layer from the effects of erosion, frost, and wind.

(2) Finished side slopes shall be stable and be configured to adequately control erosion and runoff. Slopes of 33% will be allowed provided that adequate runoff controls are established. Steeper slopes may be considered if supported by necessary stability calculations and appropriate erosion and runoff control features. All finished slopes and runoff management facilities shall be supported by necessary calculations and included in the design manual. To prevent ponding of water, the top slope shall be at least two percent after allowance for settlement.

(3) The director may approve an alternate final cover design that includes:

(a) An infiltration layer that achieves an equivalent reduction in infiltration as the infiltration layer specified in subdivisions b (1) (a) and b (1) (b) of this subsection; and

(b) An erosion layer that provides equivalent protection from wind and water erosion as the erosion layer specified in subdivision 1 b (1) (c) of this subsection.

c. Owners or operators of units used for the disposal of wastes consisting only of stumps, wood, brush, and leaves from landclearing operations may apply two feet of compacted soil as final cover material in lieu of the final cover system specified in subdivision 1 (b) (1) of this subsection. The provisions of this section shall not be applicable to any facility with respect to which the director has

made a finding that continued operation of the facility constitutes a threat to the public health or the environment.

2. Closure plan and amendment of plan.

a. The owner or operator of a solid waste disposal facility shall have a written closure plan. This plan shall identify the steps necessary to completely close the facility at the time when the operation will be the most extensive and at the end of its intended life. The closure plan shall include, at least:

(1) A description of those measures to be taken and procedures to be employed to comply with this subsection;

(2) An estimate of the largest area ever requiring a final cover as required at any time during the active life;

(3) An estimate of the maximum inventory of wastes ever on-site over the active life of the landfill facility; and

(4) A schedule for final closure shall also be provided which shall include, as a minimum, the anticipated date when wastes will no longer be received, the date when completion of final closure is anticipated, and intervening milestone dates which will allow tracking of the progress of closure.

b. The owner or operator may amend his closure plan at any time during the active life of the facility. The owner or operator shall so amend his plan any time changes in operating plans or facility design affects the closure plan.

c. The owner or operator shall notify the department whenever an amended closure plan has been prepared and placed in the operating record.

d. Prior to beginning closure of each solid waste disposal unit, the owner or operator shall notify the department of the intent to close.

e. If the owner or operator intends to use an alternate final cover design, he shall submit a proposed design meeting the requirements of subdivision 1 b (3) of this subsection to the department at least 180 days before the date he expects to begin closure. The director will approve or disapprove the plan within 90 days of receipt.

f. Closure plans, and amended closure plans not previously approved by the director shall be submitted to the department at least 180 days before the date the owner or operator expects to begin closure. The director will approve or disapprove the plan within 90 days of receipt.

3. Time allowed for closure.

a. The owner or operator shall begin closure activities of each unit no later than 30 days after the date on which the unit receives the known final receipt of wastes or, if the unit has remaining capacity and there is a reasonable likelihood that the unit will receive additional wastes, no later than one year after the most recent receipt of wastes. Extensions beyond the one-year deadline for beginning closure may be granted by the director if the owner or operator demonstrates that the unit has the capacity to receive additional wastes and the owner or operator has taken and will continue to take all steps necessary to prevent threats to human health and the environment from the unclosed unit.

b. The owner or operator shall complete closure activities in accordance with the closure plan within six months after receiving the final volume of wastes. The director may approve a longer closure period if the owner or operator can demonstrate that the required or planned closure activities will, of necessity, take longer than six months to complete; and that the owner or operator has taken all steps to eliminate any significant threat to human health and the environment from the unclosed but inactive facility.

4. Closure implementation.

a. The owner or operator shall close each unit with a final cover as specified in subdivision 1 b of this subsection, grade the fill area to prevent ponding, and provide a suitable vegetative cover.

Vegetation shall be deemed properly established when there are no large areas void of vegetation and it is sufficient to control erosion.

b. Following construction of the final cover system for each unit, the owner or operator shall submit to the department a certification, signed by a registered professional engineer verifying that closure has been completed in accordance with the closure plan requirements of this part. This certification shall include the results of the CQA/QC requirements under subdivision B 17 a (2) (e) of this section.

c. Following the closure of all units the owner or operator shall:

(1) Post one sign at the entrance of the facility notifying all persons of the closing, and the prohibition against further receipt of waste materials. Further, suitable barriers shall be installed at former accesses to prevent new waste from being deposited.

(2) Within 90 days after closure is completed, the owner or operator of a landfill shall submit to the local land recording authority a survey plat prepared by a professional land surveyor registered by the Commonwealth indicating the location and dimensions of landfill disposal areas. Monitoring well locations should be included and identified by the number on the survey plat. The plat filed with the local land recording authority shall contain a note which states the owner's or operator's future obligation to restrict disturbance of the site as specified.

(3) The owner of the property on which a disposal facility is located shall record a notation on the deed to the facility property, or on some other instrument which is normally examined during title search, notifying any potential purchaser of the property that the land has been used to manage solid waste. A copy of the deed notation as recorded shall be filed with the department.

(4) Submit to the department a certification, signed by a registered professional engineer, verifying that closure has been completed in accordance with the requirements of subdivision 4 d (1) through 4 d (3) of this subsection and the facility closure plan.

5. Inspection. The department shall inspect all solid waste management units at the time of closure to confirm that the closing is complete and adequate. It shall notify the owner of a closed facility, in writing, if the closure is satisfactory, and shall require any construction or such other steps necessary to bring unsatisfactory sites into compliance with this chapter. Notification by the department that the closure is satisfactory does not relieve the operator of responsibility for corrective action to prevent or abate problems caused by the facility.

6. Post-closure period. The post-closure care period begins on the date of the certification signed by a registered professional engineer as required in subdivision 4 c (4) of this subsection. Unless a facility completes all provisions of subdivision 4 of this subsection the department will not consider the facility closed, and the beginning of the post-closure care period will be postponed until all provisions have been completed. If the department's inspection required by subdivision 5 of this subsection reveals that the facility has not been properly closed in accordance with this part, post closure will begin on the date that the department acknowledges proper closure has been completed.

F. Post-closure care requirements

1. Following closure of all disposal units, the owner or operator shall conduct post-closure care of the facility. Except as provided under subdivision 2 of this subsection, post-closure care shall be conducted for 10 years after the date of completing closure or for as long as leachate is generated, whichever is later, and shall consist of at least the following:

- a. Maintaining the integrity and effectiveness of any final cover, including making repairs to the cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the final cover;
 - b. Maintaining and operating the leachate collection system in accordance with the requirements in 9VAC20-80-290 and 9VAC20-80-300, if applicable. The director may allow the owner or operator to stop managing leachate if the owner or operator demonstrates that leachate no longer poses a threat to human health and the environment;
 - c. Monitoring the ground water in accordance with the requirements of subsection D of this section and maintaining the ground water monitoring system, if applicable; and
 - d. If applicable, maintaining and operating the gas monitoring system in accordance with the requirements of 9VAC20-80-280.
2. The length of the post-closure care period may be:
- a. Decreased by the director if the owner or operator demonstrates that the reduced period is sufficient to protect human health and the environment and this demonstration is approved by the director; or
 - b. Increased by the director if the director determines that the lengthened period is necessary to complete the corrective measures or to protect human health and the environment. If the post-closure period is increased, the owner or operator shall submit a revised post-closure plan for review and approval, and continue post-closure monitoring and maintenance in accordance with the approved plan.

3. The owner or operator shall prepare a written post-closure plan that includes, at a minimum, the following information:

a. A description of the monitoring and maintenance activities required in subdivision 1 of this subsection for each disposal unit, and the frequency at which these activities will be performed;

b. Name, address, and telephone number of the person or office to contact about the facility during the post-closure period; and

c. A description of the planned uses of the property during the post-closure period. Post-closure use of the property shall not disturb the integrity of the final cover, liners, or any other components of the containment system, or the function of the monitoring systems unless necessary to comply with the requirements of this chapter. The director may approve any other disturbance if the owner or operator demonstrates that disturbance of the final cover, liner or other component of the containment system, including any removal of waste, will not increase the potential threat to human health or the environment.

4. The owner or operator shall submit a post-closure care plan for review and approval by the director whenever a post-closure care plan has been prepared or amended. Those post-closure care plans that have been placed in a facility's operating record must be reviewed and approved by the director prior to implementation.

5. Following completion of the post-closure care period for each disposal unit, the owner or operator shall submit to the department a certificate, signed by a registered professional engineer, verifying that post-closure care has been completed in accordance with the post-closure plan. The certificate shall be accompanied by an evaluation, prepared by a professional engineer licensed in the Commonwealth and signed by the owner or operator, assessing and evaluating the landfill's potential

for harm to human health and the environment in the event that post-closure monitoring and maintenance are discontinued.

Statutory Authority

§10.1-1402 of the Code of Virginia, 42 USC §6941 et seq., and 40 CFR Part 258.

9VAC20-80-270. Industrial waste disposal facilities.

Facilities intended primarily for the disposal of nonhazardous industrial waste shall be subject to design and operational requirements dependent on the volume and the physical, chemical, and biological nature of the waste. Household wastes may not be disposed of in industrial waste disposal facilities. Additional requirements, to include added ground water and decomposition gas monitoring, may be imposed by the director depending on the volume and the nature of the waste involved as necessary to protect health or the environment.

A. Siting.

1. Landfills shall not be sited or constructed in areas subject to base floods unless it can be shown that the facility can be protected from inundation or washout and that flow of water is not restricted.
2. Landfills shall not be sited in geologically unstable areas where inadequate foundation support for the structural components of the landfill exists. Factors to be considered when determining unstable areas shall include:
 - a. Soil conditions that may result in differential settling and subsequent failure of containment structures;
 - b. Geologic or geomorphologic features that may result in sudden or nonsudden events and subsequent failure of containment structures;
 - c. Man-made features or events (both surface and subsurface) that may result in sudden or nonsudden events and subsequent failure of containment structures;
3. Acceptable landfill sites shall have sufficient area and terrain to allow for management of leachate.

4. No new industrial waste landfill disposal or leachate storage unit or expansion of existing units shall extend closer than:

- a. 100 feet of any regularly flowing surface water body or river;
- b. 500 feet of any well, spring or other ground water source of drinking water;
- c. One thousand feet from the nearest edge of the right-of-way of any interstate or primary highway or 500 feet from the nearest edge of the right-of-way of any other highway or city street, except the following:

(1) Units which are screened by natural objects, plantings, fences, or other appropriate means so as to minimize the visibility from the main-traveled way of the highway or city street, or otherwise removed from sight;

(2) Units which are located in areas which are zoned for industrial use under authority of state law or in unzoned industrial areas as determined by the Commonwealth Transportation Board;

(3) Units which are not visible from the main-traveled way of the highway or city street;

NOTE: This requirement is based on §33.1-348 of the Code of Virginia, which should be consulted for detail. The regulatory responsibility for this standard rests with the Virginia Department of Transportation.

d. 200 feet from the active filling areas to any residence, school or recreational park area;

or

e. 50 feet from the active filling areas to the facility boundary.

5. Wetlands. New industrial landfills and lateral expansions of existing facilities shall not be located in wetlands, unless the owner or operator can make the following demonstrations:

a. Where applicable under §404 of the Clean Water Act or applicable Virginia wetlands laws, the presumption is clearly rebutted that a practicable alternative to the proposed landfill exists that does not involve wetlands;

b. The construction and operation of the facility will not:

(1) Cause or contribute to violations of any applicable water quality standard;

(2) Violate any applicable toxic effluent standard or prohibition under §307 of the Clean Water Act;

(3) Jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of a critical habitat, protected under the Endangered Species Act of 1973; and

(4) Violate any requirement under the Marine Protection, Research, and Sanctuaries Act of 1972 for the protection of a marine sanctuary;

c. The facility will not cause or contribute to significant degradation of wetlands. The owner or operator shall demonstrate the integrity of the facility and its ability to protect ecological resources by addressing the following factors:

(1) Erosion, stability, and migration potential of native wetland soils, muds and deposits used to support the facility;

(2) Erosion, stability, and migration potential of dredged and fill materials used to support the facility;

(3) The volume and chemical nature of the waste managed in the facility;

(4) Impacts on fish, wildlife, and other aquatic resources and their habitat from release of the solid waste;

(5) The potential effects of catastrophic release of waste to the wetland and the resulting impacts on the environment; and

(6) Any additional factors, as necessary, to demonstrate that ecological resources in the wetland are sufficiently protected;

d. To the extent required under §404 of the Clean Water Act or applicable Virginia wetlands laws, steps have been taken to attempt to achieve no net loss of wetlands (as defined by acreage and function) by first avoiding impacts to wetlands to the maximum extent practicable as required by 9VAC20-80-250 A 4, then minimizing unavoidable impacts to the maximum extent practicable, and finally offsetting remaining unavoidable wetland impacts through all appropriate and practicable compensatory mitigation actions (e.g., restoration of existing degraded wetlands or creation of man-made wetlands); and

e. Sufficient information is available to make a reasonable determination with respect to these demonstrations.

6. No new facility shall be located in areas where ground water monitoring cannot be conducted in accordance with subsection D of this section. Factors to be considered in determining whether or not a site can be monitored shall include:

a. Ability to characterize the direction of ground water flow within the uppermost aquifer;

b. Ability to characterize and define any releases from the landfill so as to determine what corrective actions are necessary;

c. Ability to perform corrective action as necessary; and

d. Ability to install a double liner system with a leachate collection system above the top liner and a monitoring collection system between the two liners.

7. The following site characteristics may also prevent approval or require substantial limitations on the site use or require incorporation of sound engineering controls:

- a. Excessive slopes (greater than 33%) over more than half the site area;
- b. Lack of readily available cover materials or lack of a firm commitment for adequate cover material from a borrow site;
- c. Springs, seeps, or other ground water intrusion into the site;
- d. The presence of gas, water, sewage, or electrical or other transmission lines under the site; or
- e. The prior existence on the site of a dump, unpermitted landfill, lagoon, or similar unit, even if such unit is closed, will be considered a defect in the site unless the proposed unit can be isolated from the defect by the nature of the unit design and the ground water under the proposed unit can be effectively monitored.

8. Specific site conditions may be considered in approving an exemption of a site from the siting restrictions of subdivision 5 and 6 of this subsection.

B. Design/construction. The following design and construction requirements apply to all industrial waste landfills:

1. All facilities shall be surrounded on all sides by natural barriers, fencing, or an equivalent means of controlling public access and preventing illegal disposal. Except where the solid waste disposal facility is on site of the industrial facility where access is limited, all access will be limited to gates, and such gates shall be securable and equipped with locks.

2. Access roads to the entrance of a solid waste disposal facility or site and to the disposal area shall be passable in all weather conditions, and shall be provided with a base capable of withstanding anticipated heavy vehicle loads.

3. Each off-site solid waste disposal facility should be provided with an adequately lighted and heated shelter where operating personnel can exercise site control and have access to essential sanitation facilities. Lighting, heat and sanitation facilities may be provided by portable equipment as necessary.

4. Aesthetics shall be considered in the design of a solid waste disposal facility. Use of artificial or natural screens shall be incorporated into the design for site screening and noise attenuation. The design should reflect those requirements, if any, that are determined from the long-range plan for the future use of the site.

5. All landfills should be equipped with permanent or mobile telephone or radio communications except where other on-site resources are available.

6. All facilities shall be designed to divert surface water runoff from a 25-year, 24-hour storm away from disposal areas. The design shall provide that any surface water runoff is managed so that erosion is well controlled and environmental damage is prevented.

7. The design shall provide for leachate management which shall include its collection, treatment, storage, and disposal and a leachate monitoring program in accordance with 9VAC20-80-290.

8. Each landfill shall be constructed in accordance with approved plans, which shall not be subsequently modified without approval by the department.

9. Two survey bench marks shall be established and maintained on the landfill site, and its location identified or recorded on drawings and maps of the facility.

10. Compacted lifts of deposited waste shall be of a height that is compatible with the amount received daily and the specific industrial waste being managed keeping work face to a minimum.

11. Acceptable landfill sites shall have sufficient area and terrain to allow for management of leachate.

12. A ground water monitoring system shall be installed at all new and existing industrial landfills in accordance with the requirements of 9VAC20-80-300.

13. Drainage structures shall be installed and continuously maintained to prevent ponding and erosion, and to minimize infiltration of water into solid waste cells.

14. All landfills shall be underlain by a liner system as follows:

a. Compacted soil:

(1) A liner consisting of at least one-foot layer of compacted soil with a hydraulic conductivity of no more than 1×10^{-7} cm/sec.

(2) The liner shall be placed with a minimum of 2.0% slope for leachate drainage.

(3) The liner shall be covered with a minimum one-foot thick drainage layer composed of material having a hydraulic conductivity of 1×10^{-3} cm/sec or greater (lab tested).

b. Synthetic liners:

(1) Synthetic liner consisting of a minimum 30-mil thick flexible membrane. If high density polyethylene is used, it shall be at least 60-mil thick. Synthetic liners shall be proven to be compatible with the solid waste and its leachate.

(2) The liner shall be placed in accordance with an approved construction quality control/quality assurance program submitted with the design plans.

(3) The base under the liner shall be a smooth rock-free base or otherwise prepared to prevent causing liner failure.

(4) The liner shall be placed with a minimum of 2.0% slope for leachate drainage.

(5) The liner shall be covered with a 12-inch thick drainage layer for leachate removal and a six -inch thick protective layer placed above the drainage layer, both composed of materials with a hydraulic conductivity of 1×10^{-3} cm/sec or greater (lab tested).

c. Other liners:

(1) Other augmented compacted clays or soils may be used as a liner provided the thickness is equivalent and the hydraulic conductivity will be equal to or less than that for compacted clay alone.

(2) The effectiveness of the proposed augmented soil liner shall be documented by using appropriate laboratory tests.

(3) The liner shall be placed with a minimum of 2.0% slope for leachate drainage.

d. In-place soil:

(1) Where the landfill will be separated from the ground water by low hydraulic conductivity soil as indicated by appropriate laboratory tests, which is natural and undisturbed, and provides equal or better performance in protecting ground water from leachate contamination, a liner can be developed by manipulation of the soil to form a liner with equivalent thickness and hydraulic conductivity equal to or less than that of the clay liner.

(2) The liner shall be prepared with a minimum of 2.0% slope for leachate drainage.

e. Double liners required or used in lieu of ground water monitoring shall include:

(1) Base preparation to protect the liner.

(2) A bottom or secondary liner which is soil, synthetic or augmented soil as indicated in subdivision 14 a, b, c, or d of this subsection.

(3) A witness or monitoring zone placed above the bottom or secondary liner consisting of a 12 -inch thick drainage layer composed of material with a hydraulic conductivity of 1×10^{-3} cm/sec or greater (lab tested) with a network of perforated pipe, or an equivalent design.

(4) The primary liner as indicated in subdivision 14 a, b, or c of this subsection.

(5) The primary liner will be covered with a minimum 12-inch thick drainage layer and a six-inch thick protective layer, placed above the drainage layer, both composed of materials having a hydraulic conductivity of 1×10^{-3} cm/sec or greater (lab tested).

15. The leachate collection system shall be placed above the top liner in accordance with the requirements of 9VAC20-80-290. Surface impoundments or other leachate storage structures shall be so constructed that discharge to ground water will not occur. Leachate derived from the industrial waste landfill may be recirculated provided the disposal unit is designed with a composite liner as required by 9VAC20-80-250 B 9 and a leachate collection system as required by 9VAC20-80-290.

16. Final contours of the finished landfill shall be specified. Design of final contours shall consider subsequent site uses, existing natural contours, surface water management requirements, and the nature of the surrounding area.

17. Finished side slopes shall be stable and be configured to adequately control erosion and runoff. Slopes of 33% will be allowed provided that adequate runoff controls are established. Steeper slopes may be considered if supported by necessary stability calculations and appropriate erosion and runoff control features. All finished slopes and

runoff management facilities shall be supported by necessary calculations and included in the design manual. The top slope shall be at least 2.0% to prevent ponding of water.

18. Each design shall include a gas management plan developed to control decomposition gases, unless the owner or operator can demonstrate that the chemical composition of wastes disposed clearly shows that no gases will be generated. The plan shall address the requirements of 9VAC20-80-280.

19. Construction quality assurance program.

a. General.

(1) A construction quality assurance (CQA) program is required for all landfill units. The program shall ensure that the constructed unit meets or exceeds all design criteria and specifications in the permit. The program shall be developed and implemented under the direction of a CQA officer who is a registered professional engineer.

(2) The CQA program shall address the following physical components, where applicable:

- (a) Foundations;
- (b) Low-hydraulic conductivity soil liners;
- (c) Synthetic membrane liners;
- (d) Leachate collection and removal systems; and
- (e) Final cover systems.

b. Written CQA plan. The owner or operator shall develop and implement a written CQA plan. The plan shall identify steps that will be used to monitor and document the quality of materials and the condition and manner of their installation. The CQA plan shall include:

(1) Identification of applicable units, and a description of how they will be constructed.

(2) Identification of key personnel in the development and implementation of the CQA plan, and CQA officer qualifications.

(3) A description of inspection and sampling activities for all unit components identified in subdivision 19 a (2) of this subsection including observations and tests that will be used before, during, and after construction to ensure that the construction materials and the installed unit components meet the design specifications. The description shall cover: sampling size and locations; frequency of testing; data evaluation procedures; acceptance and rejection criteria for construction materials; plans for implementing corrective measures; and data or other information to be recorded.

c. Contents of program. The CQA program shall include observations, inspections, tests, and measurements sufficient to ensure:

(1) Structural stability and integrity of all components of the unit identified in subdivision 19 a (2) of this subsection;

(2) Proper construction of all components of the liners, leachate collection and removal system, gas management system if required under subdivision 18 of this subsection and final cover system, according to permit specifications and good engineering practices, and proper installation of all components (e.g., pipes) according to design specifications;

(3) Conformity of all materials used with design and other material specifications;

(4) The permeability of the soil liner. Soil liner construction will be demonstrated on a test pad where permeability will be confirmed using an in situ testing method.

d. Certification. Waste shall not be received in a landfill unit until the owner or operator has submitted to the department by certified mail or hand delivery a certification signed

by the CQA officer that the approved CQA plan has been successfully carried out and that the unit meets the requirements of this section. Documentation supporting the CQA officer's certification shall be submitted to the department upon request. An additional certification is required under the provisions of 9VAC20-80-550 A 1

C. Operation.

1. Access to an off-site solid waste disposal facility shall be permitted only when an attendant is on duty and during times specified in the permit for the facility. An on-site solid waste disposal facility may operate during the normal hours of the industrial facility it directly supports.
2. Dust, odors, and vectors shall be effectively controlled so they do not constitute nuisances or hazards.
3. Safety hazards to operating personnel shall be ~~prevented~~ controlled through an active safety program consistent with the requirements of 29 CFR Part 1910 .
4. Adequate numbers and types of properly maintained equipment shall be available to a facility for the performance of operation. Provision shall be made for substitute equipment to be available within 24 hours should the former become inoperable or unavailable.
5. Open burning shall be prohibited except pursuant to the appropriate conditional exemptions among those listed in 9VAC20-80-180 B 7 b. The means shall be provided on a facility to promptly extinguish any non-permitted open burning and to provide adequate fire protection for the solid waste disposal facility as a whole. There shall be no open burning permitted on areas where solid waste has been disposed or is being used for active disposal.

6. Solid waste shall not be deposited in, nor shall it be permitted to enter any surface waters or ground waters.
7. Records of waste received from off-site sources shall be maintained on the amount of solid waste received and processed, type of waste, and source of waste. Such information shall be made available to the department on request.
8. The ground water monitoring program shall be implemented in accordance with subsection D of this section.
9. Corrective action program. A corrective action program in accordance with 9VAC20-80-310 is required whenever the ground water protection levels are exceeded.
10. Fugitive dust and mud deposits on main site and access roads shall be controlled at all times to minimize nuisances.
11. Incinerator and air pollution control residues containing no free liquids should be incorporated into the working face and covered at such intervals as necessary to minimize them from becoming airborne.
12. Compaction and cover requirements.
 - a. Unless provided otherwise in the permit, solid waste shall be spread and compacted at the working face, which shall be confined to the smallest area practicable.
 - b. Lift heights shall be sized according to the volume of waste received daily and the nature of the industrial waste. A lift height is not required for materials such as fly ash that are not compactable.
 - c. Where it is appropriate for the specific waste, daily cover consisting of six inches of compacted earth or other suitable material shall be placed upon all exposed solid waste prior to the end of each operating day. For wastes such as fly ash and bottom ash from

burning of fossil fuels, periodic cover to minimize exposure to precipitation and control dust or dust control measures such as surface wetting or crusting agents shall be applied.

d. Intermediate cover of at least one foot of compacted soil shall be applied whenever an additional lift of refuse is not to be applied within 30 days unless the owner or operator demonstrates to the satisfaction of the director that an alternate cover material or an alternate schedule will be protective of public health and the environment. In the case of facilities where coal combustion by-products are removed for beneficial use, intermediate cover must be applied in any area where ash has not been placed or removed for 30 days or more. Further, all areas with intermediate cover exposed shall be inspected as needed but not less than weekly and additional cover material shall be placed on all cracked, eroded, and uneven areas as required to maintain the integrity of the intermediate cover system.

e. Final cover construction will be initiated in accordance with the requirements of subsection E of this section shall be applied when the following pertain:

- (1) When an additional lift of solid waste is not to be applied within two years.
- (2) When any area of a landfill attains final elevation and within 90 days after such elevation is reached. The director may approve a longer period in case of inclement weather. The director may approve alternate timeframes if they are specified in the facility's closure plan.
- (3) When a landfill's permit is terminated within 90 days of such denial or termination.

13. Vegetative cover with proper support layers shall be established and maintained on all exposed final cover material within four months after placement, or as otherwise specified by the department when seasonal conditions do not otherwise permit.

14. No hazardous wastes as defined by the Virginia Hazardous Waste Management Regulations shall be accepted at the landfill.

15. The open working face of a landfill shall be kept as small as possible.

16. At least three days of acceptable cover soil or approved material at the average usage rate shall be maintained at the fill at all times at facilities where daily cover is required unless an off-site supply is readily available on a daily basis.

17. Equipment of appropriate size and numbers shall be on site at all times. Operators with training appropriate to the tasks they are expected to perform and in sufficient numbers for the complexity of the site shall be on the site whenever it is in operation. Equipment and operators provided will not be satisfactory unless they ensure that the site is managed with a high degree of safety and effectiveness.

18. Internal roads in the landfill shall be maintained to be passable in all weather by ordinary vehicles. All operation areas and units shall be accessible; gravel or other finish materials are usually required to accomplish this. Provisions shall be made to prevent tracking of mud onto public roads by vehicles leaving the site.

19. Leachate from a solid waste disposal facility shall not be permitted to drain or discharge into surface waters except when authorized under a VPDES Permit issued pursuant to the State Water Control Board Regulation (9VAC25-31).

D. Ground water monitoring program. Ground water monitoring program shall be instituted at all industrial waste landfills in accordance with the requirements contained in 9VAC20-80-300.

E. Closure.

1. Closure criteria. All industrial waste landfills shall be closed in accordance with the procedures set forth as follows:

a. The owner or operator shall close his facility in a manner that minimizes the need for further maintenance, and controls the post-closure escape of uncontrolled leachate, surface runoff, or waste decomposition products to the ground water, surface water, or to the atmosphere.

b. Owner or operator of all industrial landfills shall install a final cover system that is designed to achieve the performance requirements of subdivision 1 a of this subsection.

(1) The final cover system shall be designed and constructed to:

(a) Have a hydraulic conductivity less than or equal to the hydraulic conductivity of any bottom liner system or natural subsoils present, or a hydraulic conductivity no greater than 1×10^{-5} cm/sec, whichever is less; and

(b) Minimize infiltration through the closed disposal unit by the use of an infiltration layer that contains a minimum 18 inches of earthen material; and

(c) Minimize erosion of the final cover by the use of an erosion layer that contains a minimum of six inches of earthen material that is capable of sustaining native plant growth, and provide for protection of the infiltration layer from the effects of erosion, frost, and wind.

(2) Finished side slopes shall be stable and be configured to adequately control erosion and runoff. Slopes of 33% will be allowed provided that adequate runoff controls are established. Steeper slopes may be considered if supported by necessary stability calculations and appropriate erosion and runoff control features. All finished slopes and

runoff management facilities shall be supported by necessary calculations and included in the design manual.

(3) The director may approve an alternate final cover design that includes:

(a) An infiltration layer that achieves an equivalent reduction in infiltration as the infiltration layer specified in subdivisions 1 b (1) (a) and (b) of this subsection; and

(b) An erosion layer that provides equivalent protection from wind and water erosion as the erosion layer specified in subdivision 1 b (1) (c) of this subsection.

2. Closure plan and amendment of plan.

a. The owner or operator of a solid waste disposal facility shall have a written closure plan. This plan shall identify the steps necessary to completely close the facility at the time when the operation will be the most extensive and at the end of its intended life. The closure plan shall include, at least:

(1) A description of those measures and procedures to be employed to comply with this subsection;

(2) An estimate of the largest area ever requiring a final cover as required at any time during the active life;

(3) An estimate of the maximum inventory of wastes ever on-site over the active life of the landfill facility; and

(4) A schedule for final closure shall also be provided which shall include, as a minimum, the anticipated date when wastes will no longer be received, the date when completion of final closure is anticipated, and intervening milestone dates which will allow tracking of the progress of closure.

b. The owner or operator may amend his closure plan at any time during the active life of the facility. The owner or operator shall so amend his plan any time changes in operating plans or facility design affect the closure plan. The amended closure plan shall be placed in the operating record.

c. The owner or operator shall notify the department whenever an amended closure plan has been prepared and placed in the operating record.

d. Prior to beginning closure of each solid waste disposal unit, the owner or operator shall notify the department of the intent to close.

e. If the owner or operator intends to use an alternate final cover design, he shall submit a proposed design meeting the requirements of subdivision 1 b (3) of this subsection to the department at least 180 days before the date he expects to begin closure. The director will approve or disapprove the plan within 90 days of receipt.

f. Closure plans, and amended closure plans not previously approved by the director shall be submitted to the department at least 180 days before the date the owner or operator expects to begin closure. The director will approve or disapprove the plan within 90 days of receipt.

3. Time allowed for closure.

a. The owner or operator shall begin closure activities of each unit no later than 30 days after the date on which the unit receives the known final receipt of wastes or, if the unit has remaining capacity and there is a reasonable likelihood that the unit will receive additional wastes, no later than one year after the most recent receipt of wastes.

Extensions beyond the one-year deadline for beginning closure may be granted by the director if the owner or operator demonstrates that the unit has the capacity to receive

additional wastes and the owner or operator has taken and will continue to take all steps necessary to prevent threats to human health and the environment from the unclosed unit.

b. The owner or operator shall complete closure activities in accordance with the closure plan and within six months after receiving the final volume of wastes. The director may approve a longer closure period if the owner or operator can demonstrate that the required or planned closure activities will, of necessity, take longer than six months to complete; and that he has taken all steps to eliminate any significant threat to human health and the environment from the unclosed but inactive facility.

4. Closure implementation.

a. The owner or operator shall close each unit with a final cover as specified in subdivision 1 b of this subsection, grade the fill area to prevent ponding, and provide a suitable vegetative cover. Vegetation shall be deemed properly established when there are no large areas void of vegetation and it is sufficient to control erosion.

b. Following construction of the final cover system for each unit, the owner or operator shall submit to the department a certification, signed by a registered professional engineer verifying that closure has been completed in accordance with the closure plan requirements of this part. This certification shall include the results of the CQA/QC requirements under subdivision B 19 a (2) (e) of this section.

c. Following the closure of all units the owner or operator shall:

(1) Post one sign at the entrance of the facility notifying all persons of the closing, and providing a notice prohibiting further receipt of waste materials. Further, suitable barriers shall be installed at former accesses to prevent new waste from being deposited.

(2) Within 90 days after closure is completed, submit to the local land recording authority a survey plat indicating the location and dimensions of landfill disposal areas prepared by a professional land surveyor registered by the Commonwealth. Monitoring well locations should be included and identified by the number on the survey plat. The plat filed with the local land recording authority shall contain a note, prominently displayed, which states the owner's or operator's future obligation to restrict disturbance of the site as specified.

(3) The owner of the property on which a solid waste disposal facility is located shall record a notation on the deed to the facility property, or on some other instrument which is normally examined during title search, notifying any potential purchaser of the property that the land has been used to manage solid waste. A copy of the deed notation as recorded shall be filed with the department.

(4) Submit to the department a certification, signed by a registered professional engineer, verifying that closure has been completed in accordance with the requirements of subdivision 4 c (1) through (3) of this subsection and the facility closure plan.

5. Inspection. The department shall inspect all solid waste management units at the time of closure to confirm that the closing is complete and adequate. It shall notify the owner of a closed facility, in writing, if the closure is satisfactory, and shall require any construction or such other steps necessary to bring unsatisfactory sites into compliance with these regulations. Notification by the department that the closure is satisfactory does not relieve the operator of responsibility for corrective action to prevent or abate problems caused by the facility.

6. Post-closure period. The post-closure care period begins on the date of the certification signed by a registered professional engineer as required in subdivision 4 c (4) of this subsection. Unless a facility completes all provisions of subdivision 4 of this subsection, the department will not consider the facility closed, and the beginning of the post-closure care period will be postponed until all provisions have been completed. If the department's inspection required by subdivision 5 of this subsection reveals that the facility has not been properly closed in accordance with this part, post-closure will begin on the date that the department acknowledges proper closure has been completed.

F. Post-closure care requirements.

1. Following closure of all disposal units, the owner or operator shall conduct post-closure care of the facility. Except as provided under subdivision 2 of this subsection, post-closure care shall be conducted for 10 years after the date of closure or for as long as leachate is generated, whichever is later, and shall consist of at least the following:

a. Maintaining the integrity and effectiveness of any final cover, including making repairs to the cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the final cover;

b. Maintaining and operating the leachate collection system in accordance with the requirements in 9VAC20-80-290 and 9VAC20-80-300. The director may allow the owner or operator to stop managing leachate if the owner or operator demonstrates that leachate no longer poses a threat to human health and the environment;

c. Monitoring the ground water in accordance with the requirements of subsection D of this section and maintaining the ground water monitoring system; and

d. If applicable, maintaining and operating the gas monitoring system in accordance with the requirements of 9VAC20-80-280.

2. The length of the post-closure care period may be:

a. Decreased by the director if the owner or operator demonstrates that the reduced period is sufficient to protect human health and the environment and this demonstration is approved by the director; or

b. Increased by the director if the director determines that the lengthened period is necessary to complete the corrective measures or to protect human health and the environment. If the post-closure period is increased, the owner or operator shall submit a revised post-closure plan for review and approval, and continue post-closure monitoring and maintenance in accordance with the approved plan.

3. The owner or operator shall prepare a written post-closure plan that includes, at a minimum, the following information:

a. A description of the monitoring and maintenance activities required in subdivision 1 of this subsection for each disposal unit, and the frequency at which these activities will be performed;

b. Name, address, and telephone number of the person or office to contact about the facility during the post-closure period; and

c. A description of the planned uses of the property during the post-closure period. Post-closure use of the property shall not disturb the integrity of the final cover, liners, or any other components of the containment system, or the function of the monitoring systems unless necessary to comply with the requirements of this chapter. The director may approve any other disturbance if the owner or operator demonstrates that disturbance of

the final cover, liner or other component of the containment system, including any removal of waste, will not increase the potential threat to human health or the environment.

4. The owner or operator shall submit a post-closure care plan for review and approval by the director whenever a post-closure care plan has been prepared or amended. Those post-closure care plans that have been placed in a facility's operating record must be reviewed and approved by the director prior to implementation.

5. Following completion of the post-closure care period for each disposal unit, the owner or operator shall submit to the department a certificate, signed by a registered professional engineer, verifying that post-closure care has been completed in accordance with the post-closure plan. The certificate shall be accompanied by an evaluation, prepared by a professional engineer licensed in the Commonwealth and signed by the owner or operator, assessing and evaluating the landfill's potential for harm to human health and the environment in the event that post-closure monitoring and maintenance are discontinued.

Statutory Authority

§10.1-1402 of the Code of Virginia, 42 USC §6941 et seq., and 40 CFR Part 258.

9VAC20-80-280. Control of decomposition gases.

Owners or operators of solid waste disposal facilities shall develop a gas management plan in accordance with this section. Venting and control of decomposition gases shall be implemented for all sanitary landfills under 9 VAC 20-80-250 B and other landfills where required under ~~9VAC20-80-250 B 8~~, 9VAC20-80-260 B 9 ; or 9VAC20-80-270 B

18 to protect the facility cap, and to prevent migration into structures or beyond the facility boundary. The contents of the plan shall also reflect the requirements contained in 40 CFR 60.33c and 40 CFR 60.750 (Standards of performance for new and guidelines for control of existing municipal solid waste landfills) and 9VAC5-40-5800, as appropriate.

A. General requirements.

1. To provide for the protection of public health and safety, and the environment, the operator shall ensure that decomposition gases generated at a facility are controlled during the periods of operation, closure and post-closure care, in accordance with the following requirements:

- a. The concentration of methane gas generated by the facility shall not exceed 25% of the lower explosive limit (LEL) for methane in facility structures (excluding gas control or recovery system components); and
- b. The concentration of methane gas migrating from the landfill shall not exceed the lower explosive limit for methane at the facility boundary.

2. The program implemented pursuant to subsections B through E of this section shall continue throughout the active life of the facility and the closure and post-closure care periods or until the operator receives written authorization ~~to discontinue~~ by the department to discontinue . Authorization to cease gas monitoring and control shall be based on a demonstration by the operator that there is no potential for gas migration beyond the facility boundary or into facility structures.

3. Gas monitoring and control systems shall be modified, during the closure and post-closure maintenance period, to reflect changing on-site and adjacent land uses. Post

closure land use at the site shall not interfere with the function of gas monitoring and control systems.

4. The operator may request a reduction of monitoring or control activities based upon the results of collected monitoring data ~~collected~~. The request for reduction of monitoring or control activities shall be submitted in writing to the department.

B. Gas Monitoring. ~~To ensure that the conditions of this section are met,~~ Subject to the preconditions in 9 VAC 20-80-250 B, 9 VAC 20-80-260 B 9, and 9 VAC 20-80-270 B 18, the operator shall implement a gas monitoring program at the facility in accordance with the following requirements:

1. The gas monitoring network shall be designed to ensure detection of the presence of decomposition gas migrating beyond the landfill facility boundary and into facility structures.
2. The monitoring network shall be designed to account for the following specific site characteristics, and potential migration pathways or barriers, including, but not limited to:
 - a. Local soil and rock conditions;
 - b. Hydrogeological and hydraulic conditions surrounding the facility;
 - c. Locations of buildings and structures relative to the waste deposit area;
 - d. Adjacent land use, and inhabitable structures within 1000 feet of the landfill facility boundary;
 - e. Man-made pathways, such as underground construction; and
 - f. The nature and age of waste and its potential to generate decomposition gas.

3. Owners or operators of certain large sanitary landfills and landfills located in non-attainment areas may be required to perform additional monitoring as provided in 40 CFR 60.33c, 40 CFR 60.750, and 9VAC5-40-5800.

~~C. Monitoring frequency.~~

~~1. As a minimum, quarterly monitoring is required.~~

4. At a minimum, the gas monitoring frequency shall be quarterly. The department may require more frequent monitoring at locations where monitoring results indicate gas migration or gas accumulation in devices or structures designed to detect migrating gas.

~~2. More frequent monitoring may be required by the department at those locations where results of monitoring indicate that decomposition gas migration is occurring or is accumulating in structures to detect migrating gas and ensure compliance with subsection A of this section.~~

C. Gas Remediation.

1. When the gas monitoring results indicate concentrations of methane in excess of the action levels, 25% of the lower explosive limit (LEL) for methane in facility structures (excluding gas control or recovery system components) or 80% of the LEL for methane at the facility boundary, the operator shall:

a. Take all immediate steps necessary to protect public health and safety including those required by the contingency plan.

b. Notify the department in writing within five working days of learning that action levels have been exceeded, and indicate what has been done or is planned to be done to resolve the problem.

2. When the gas monitoring results indicate concentrations of methane in excess of the compliance levels, 25% of the LEL for methane in facility structures (excluding gas control or recovery system components) or the LEL for methane at the facility boundary, the operator shall, within 60 days of detection, implement a remediation plan for the methane gas releases and submit it to the department for amendment of the facility permit. The plan shall describe the nature and extent of the problem and the proposed remedy. The plan shall include: an implementation schedule specifying timeframes for implementing corrective actions, an evaluation of the effectiveness of such corrective actions, and milestones for proceeding in implementation of additional corrective actions, if necessary to reestablish compliance.

3. A gas remediation system shall:

a. Prevent methane accumulation in on-site structures.

b. Reduce methane concentrations at monitored property boundaries to below compliance levels in the timeframes specified in the gas remediation plan.

c. Provide for the collection and treatment and/or disposal of decomposition gas condensate produced at the surface. Condensate generated from gas control systems may be recirculated into the landfill provided the facility complies with the liner and leachate control systems requirements of this part. Condensate collected in condensate traps and drained by gravity into the waste mass will not be considered recirculation.

4. Extensive systems to control emissions of non-methane organic compounds may be required under the Clean Air Act (40 CFR 60.33c and 40 CFR 60.750) and 9VAC5-40-5800. Facilities that are required to construct and operate systems designed to comply with those regulations will be considered to be in compliance with the requirements of

subdivisions 3 a and b of this subsection, unless monitoring data continues to indicate an exceedance of compliance levels. Gas control systems also may be subject to the Virginia Operating Permit Program 9VAC5-80-40 or other state air pollution control regulations.

5. The facility shall notify the department of an initial exceedance of the compliance level or unusual condition which may endanger human health and the environment, in accordance with 9 VAC 20-80-570.C.3, such as when an active gas remediation system is no longer operating in such a manner as to maintain compliance with this section.

D. Odor Management

1. When an odor nuisance or hazard is created under normal operating conditions and upon notification from the department, the permittee shall, within 90 days, develop and implement an odor management plan to address odors that may impact citizens beyond the internal property boundaries. The permittee shall place the plan in the operating record and a copy shall be submitted to the department for its records. Odor management plans developed in accordance with Virginia Air Regulations, 9VAC5-40-140, 9VAC 5-50-140 or other state air pollution control regulations will suffice for the provisions of this section (D).

2. The plan shall identify a contact at the facility that citizens can notify about odor concerns.

3. Facilities shall perform and document an annual review and update the odor management plan, as necessary, to address ongoing odor management issues.

DE. Recordkeeping. The owner or operator shall keep the records of the results of gas monitoring and any gas remediation issues throughout the active life of the facility and the post-closure care period. The ~~monitoring~~ records shall include:

1. The concentrations of the methane as measured at each probe and within each on-site structure;
2. The documentation of date, time, barometric pressure, atmospheric temperatures, general weather conditions, and probe pressures;
3. The names of sampling personnel, apparatus utilized, and a brief description of the methods used;
4. A numbering system to correlate monitoring results to a corresponding probe location.
5. Monitoring and design records for any gas remediation or control system.

~~E. Control.~~

- ~~1. When the results of gas monitoring indicate concentrations of methane in excess of the compliance levels required by subdivision A 1 of this subsection, the operator shall:
 - ~~a. Take all immediate steps necessary to protect public health and safety including those required by the contingency plan.~~
 - ~~b. Notify the department in writing within five working days of learning that compliance levels have been exceeded, and indicate what has been done or is planned to be done to resolve the problem.~~
 - ~~c. Within 60 days of detection, implement a remediation plan for the methane gas releases and submit it to the department for approval and amendment of the facility permit. The plan shall describe the nature and extent of the problem and the proposed remedy.~~~~
- ~~2. A gas control system shall be designed to:
 - ~~a. Prevent methane accumulation in on-site structures.~~~~

~~b. Reduce methane concentrations at monitored property boundaries to below compliance levels in the timeframes specified in the gas remediation plan.~~

~~c. Provide for the collection and treatment and/or disposal of decomposition gas condensate produced at the surface. Condensate generated from gas control systems may be recirculated into the landfill provided the facility complies with the liner and leachate control systems requirements of this part. Condensate collected in condensate traps and drained by gravity into the waste mass will not be considered recirculation.~~

~~3. Extensive systems to control emissions of non-methane organic compounds may be required under the Clean Air Act (40 CFR 60.33c and 40 CFR 60.750) and 9VAC5-40-5800. Facilities that are required to construct and operate systems designed to comply with those regulations will be considered to be in compliance with the requirements of subdivisions 2 a and b of this subsection. Gas control systems also may be subject to the Virginia Operating Permit Program 9VAC5-80-40 or other state air pollution control regulations.~~

Statutory Authority

§10.1-1402 of the Code of Virginia, 42 USC §6941 et seq., and 40 CFR Part 258.

Part VII

Permitting of Solid Waste Management Facilities

9VAC20-80-485. Permits-by-rule and other special permits.

A. Permits by rule. Unless the owner or operator of the following facilities chooses to apply for and receive a full permit, he shall be deemed to have a solid waste management facility permit notwithstanding any other provisions of Part VII (9VAC20-80-480 et seq.) of this chapter, except 9VAC20-80-500 B 2 and B 3, if the conditions listed are met:

1. Transfer stations. The owner or operator of a transfer station, if he:
 - a. Notifies the director of his intent to operate such a facility and provides to the department documentation required under 9VAC20-80-500 B;
 - b. Provides the director with a certification that the facility meets the siting standards of 9VAC20-80-340 B;
 - c. Furnishes to the director a certificate signed by a registered professional engineer that the facility has been designed and constructed in accordance with the standards of 9VAC20-80-340 C;
 - d. Submits to the director an operational plan describing how the standards of 9VAC20-80-340 D will be met;
 - e. Submits to the director a closure plan describing how the standards of 9VAC20-80-340 E will be met; and
 - f. Submits to the director the proof of financial responsibility if required by the Financial Assurance Regulations for Solid Waste Disposal, Transfer, and Treatment Facilities (9VAC20-70); and

- g. Submits to the director the results of the public participation effort conducted in accordance with the requirements contained in subdivision 6 of this subsection.
2. Materials recovery facilities. The owner or operator of a materials recovery facility, if the owner or operator:
- a. Notifies the director of his intent to operate such a facility and provides the department with documentation required under 9VAC20-80-500 B;
 - b. Provides the director with a certification that the facility meets the siting standards of 9VAC20-80-360 B, as applicable;
 - c. Furnishes to the director a certificate signed by a registered professional engineer that the facility has been designed and constructed in accordance with the standards of 9VAC20-80-360 C, as applicable;
 - d. Submits to the director an operational plan describing how the standards of 9VAC20-80-360 D, as applicable, will be met;
 - e. Submits to the director a closure plan describing how the standards of 9VAC20-80-360 E, as applicable, will be met;
 - f. Submits to the director the proof of financial responsibility if required by the Financial Assurance Regulations for Solid Waste Disposal, Transfer, and Treatment Facilities (9VAC20-70);
 - g. Submits to the director the results of the public participation effort conducted in accordance with the requirements contained in subdivision 6 of this subsection; and
 - h. In addition to the above, in the case of facilities engaged in reclamation of petroleum-contaminated materials, submits to the director:

(1) A copy of the facility permit issued in accordance with the regulations promulgated by the of Air Pollution Control Board when applicable; and

(2) A description how the requirements of 9VAC20-80-700 will be met.

Existing soil reclamation facilities which became operational prior to March 15, 1993, on the basis of written approval from the director, are considered to be operating under a permit-by-rule.

3. Energy recovery, thermal treatment, or incineration facility. The owner or operator of an energy recovery, thermal treatment, or incineration facility, if he:

- a. Notifies the director of his intent to operate such a facility and provides to the department documentation required under 9VAC20-80-500 B;
- b. Provides the director with a certification that the facility meets the siting standards of 9VAC20-80-370 B, as applicable;
- c. Furnishes to the director a certificate signed by a registered professional engineer that the facility has been designed and constructed in accordance with the standards of 9VAC20-80-370 C, as applicable;
- d. Submits to the director an operational plan describing how the standards of 9VAC20-80-370 D, as applicable, will be met;
- e. Submits to the director a closure plan describing how the standards of 9VAC20-80-370 E, as applicable, will be met;
- f. Submits to the director the proof of financial responsibility if required by the Financial Assurance Regulations for Solid Waste Disposal, Transfer, and Treatment Facilities (9VAC20-70); and

g. Furnishes to the director a copy of the facility permit issued in accordance with the regulations promulgated by the Air Pollution Control Board.

In addition to the above, in the case of thermal treatment facilities engaged in reclamation of petroleum-contaminated materials, submits to the director a description of how the requirements of 9VAC20-80-700 will be met.

4. Composting facilities. The owner or operator of all Type A or Type B facilities that receive no more than 700 tons per quarter of compostable materials, if he:

- a. Notifies the director of his intent to operate such a facility and provides to the department documentation required under 9VAC20-80-500 B;
- b. Provides the director with the description of the type of facility and the classification of materials that will be composted as classified under 9VAC20-80-330 A 4;
- c. Provides the director with a certification that the facility meets the siting standards of 9VAC20-80-330 B;
- d. Furnishes to the director a certificate signed by a registered professional engineer that the facility has been designed and constructed in accordance with the standards of 9VAC20-80-330 C;
- e. Submits to the director an operational plan describing how the standards of 9VAC20-80-330 D will be met;
- f. Submits to the director a closure plan describing how the standards of 9VAC20-80-330 E will be met;
- g. Submits to the director the proof of financial responsibility if required by the Financial Assurance Regulations for Solid Waste Disposal, Transfer, and Treatment Facilities (9VAC20-70); and

- h. Submits to the director the results of the public participation effort conducted in accordance with the requirements contained in subdivision 6 of this subsection.
5. Waste piles. The owner or operator of a waste pile, if the owner or operator:
 - a. Notifies the director of his intent to operate such a facility and provides the department with documentation required under 9VAC20-80-500 B;
 - b. Provides the director with a certification that the facility meets the siting standards of 9VAC20-80-400 B, as applicable;
 - c. Furnishes to the director a certificate signed by a registered professional engineer that the facility has been designed and constructed in accordance with the standards of 9VAC20-80-400 C, as applicable;
 - d. Submits to the director an operational plan, including a contingency plan, describing how the standards of 9VAC20-80-400 D, as applicable, will be met;
 - e. Submits to the director a closure plan describing how the standards of 9VAC20-80-400 E, as applicable, will be met;
 - f. Submits to the director the proof of financial responsibility if required by the Financial Assurance Regulations for Solid Waste Facilities (9VAC20-70);
 - g. Submits to the director the results of the public participation effort conducted in accordance with the requirements contained in subdivision 6 of this subsection; and
 - h. Submits to the director a copy of the facility's VPDES permit if applicable.
 6. Public participation.
 - a. Before the initiation of any construction at the facility under subdivision 1, 2, 3, or 4 of this subsection, the owner or operator shall publish a notice once a week for two consecutive weeks in a major local newspaper of general circulation informing the public

that he intends to construct and operate a facility eligible for a permit-by-rule. The notice shall include:

- (1) A brief description of the proposed facility and its location;
- (2) A statement that the purpose of the public participation is to acquaint the public with the technical aspects of the facility and how the standards and the requirements of this chapter will be met, to identify issues of concern, to facilitate communication and to establish a dialogue between the permittee and persons who may be affected by the facility;
- (3) Announcement of a 30-day comment period, in accordance with subdivision 6 d of this subsection, and the name, telephone number, and address of the owner's or operator's representative who can be contacted by the interested persons to answer questions or where comments shall be sent;
- (4) Announcement of the date, time, and place for a public meeting held in accordance with subdivision 6 c of this subsection; and
- (5) Location where copies of the documentation to be submitted to the department in support of the permit-by-rule notification and any supporting documents can be viewed and copied.

b. The owner or operator shall place a copy of the documentation and support documents in a location accessible to the public in the vicinity of the proposed facility.

c. The owner or operator shall hold a public meeting not earlier than 15 days after the publication of the notice required in subdivision 6 a of this subsection and no later than seven days before the close of the 30-day comment period. The meeting shall be held to the extent practicable in the vicinity of the proposed facility.

d. The public shall be provided 30 days to comment on the technical and the regulatory aspects of the proposal. The comment period will begin on the date the owner or operator publishes the notice in the local newspaper.

e. The requirements of this section do not apply to the owners or operators of a material or energy recovery facility, an incinerator or a thermal treatment unit that has received a permit from the department based on the regulations promulgated by the State Air Pollution Control Board or State Water Control Board that required facility-specific public participation procedures.

7. Upon receiving the certifications and other required documents, including the results of the public meeting and the applicant's response to the comments received, the director will acknowledge their receipt within ~~10 working~~ 30 calendar days. If the applicant's submission is administratively incomplete, the letter will state that the facility will not be considered to have a permit-by-rule until the missing certifications or other required documentation is submitted. At the time of the initial receipt or at a later date, the director may require changes in the documents designed to assure compliance with the standards of Part VI (9VAC20-80-320 et seq.) and Part VIII (9VAC20-80-630 et seq.), if applicable. Should such changes not be accomplished by the facility owner or operator, the director may require the operator to submit the full permit application and to obtain a regular solid waste management facility permit.

8. Change of ownership. A permit by rule may not be transferred by the permittee to a new owner or operator. However, when the property transfer takes place without proper closure, the new owner shall notify the department of the sale and fulfill all the requirements contained in subdivisions 1 through 4 of this subsection with the exception

of those dealing with the financial assurance. Upon presentation of the financial assurance proof required by 9VAC20-70 by the new owner, the department will release the old owner from his closure and financial responsibilities and acknowledge existence of the new permit by rule in the name of the new owner.

9. Facility modifications. The owner or operator of a facility operating under a permit by rule may modify its design and operation by furnishing the department a new certificate prepared by the professional engineer and new documentation required under subdivision 1, 2, 3, 4, or 5 as applicable, and 6 of this subsection. Whenever modifications in the design or operation of the facility affect the provisions of the approved closure plan, the owner or operator shall also submit an amended closure plan. Should there be an increase in the closure costs, the owner or operator shall submit a new proof of financial responsibility as required by the Financial Assurance Regulations for Solid Waste Disposal, Transfer, and Treatment Facilities (9VAC20-70).

10. Loss of permit by rule status. In the event that a facility operating under a permit by rule violates any applicable siting, design and construction, or closure provisions of Part VI of this chapter, the owner or operator of the facility will be considered to be operating an unpermitted facility as provided for in 9VAC20-80-80 and shall be required to either obtain a new permit as required by Part VII or close under Part V or VI of this chapter, as applicable.

11. Termination. The director shall terminate permit by rule and shall require closure of the facility whenever he finds that:

a. As a result of changes in key personnel, the requirements necessary for a permit by rule are no longer satisfied;

b. The applicant has knowingly or willfully misrepresented or failed to disclose a material fact in his disclosure statement, or any other report or certification required under this chapter, or has knowingly or willfully failed to notify the director of any material change to the information in the disclosure statement;

c. Any key personnel have been convicted of any of the crimes listed in §10.1-1409 of the Code of Virginia, punishable as felonies under the laws of the Commonwealth, or the equivalent of them under the laws of any other jurisdiction; or has been adjudged by an administrative agency or a court of competent jurisdiction to have violated the environmental protection laws of the United States, the Commonwealth or any other state and the director determines that such conviction or adjudication is sufficiently probative of the permittee's inability or unwillingness to operate the facility in a lawful manner; or

d. The operation of the facility is inconsistent with the facility's operations manual and the operational requirements of the regulations.

B. Emergency permits. Notwithstanding any other provision of Part VII of this chapter, in the event the director finds an imminent and substantial endangerment to human health or the environment, the director may issue a temporary emergency permit to a facility to allow treatment, storage, or disposal of solid waste for a nonpermitted facility or solid waste not covered by the permit for a facility with an effective permit. Such permits:

1. May be oral or written. If oral, it shall be followed within five days by a written emergency permit;
2. Shall not exceed 90 days in duration;
3. Shall clearly specify the solid wastes to be received, and the manner and location of their treatment, storage, or disposal;

4. Shall be accompanied by a public notice including:

- a. Name and address of the office granting the emergency authorization;
- b. Name and location of the facility so permitted;
- c. A brief description of the wastes involved;
- d. A brief description of the action authorized and reasons for authorizing it;
- e. Duration of the emergency permit; and

5. Shall incorporate, to the extent possible and not inconsistent with the emergency situation, all applicable requirements of this chapter.

C. Experimental facility permits.

1. The director may issue an experimental facility permit for any solid waste treatment facility which proposes to utilize an innovative and experimental solid waste treatment technology or process for which permit standards for such experimental activity have not been promulgated under Part VI of this chapter. Any such permit shall include such terms and conditions as will assure protection of human health and the environment. Such permits:

- a. Shall provide for the construction of such facilities based on the standards shown in 9VAC20-80-470, as necessary;
- b. Shall provide for operation of the facility for no longer than one calendar year unless renewed as provided in subdivision 3 of this subsection;
- c. Shall provide for the receipt and treatment by the facility of only those types and quantities of solid waste which the director deems necessary for purposes of determining the efficiency and performance capabilities of the technology or process and the effects of such technology or process on human health and the environment; and

d. Shall include such requirements as the director deems necessary to protect human health and the environment (including, but not limited to, requirements regarding monitoring, operation, closure and remedial action), and such requirements as the director deems necessary regarding testing and providing of information to the director with respect to the operation of the facility.

2. For the purpose of expediting review and issuance of permits under this subsection, the director may, consistent with the protection of human health and the environment, modify or waive permit application and permit issuance requirements in Part VII of this chapter except that there may be no modification or waiver of regulations regarding local certification, disclosure statement requirements, financial responsibility (including insurance) or of procedures regarding public participation.

3. Any permit issued under this subsection may be renewed not more than three times. Each such renewal shall be for a period of not more than one calendar year.

D. Research, Development and Demonstration Plans. Research, Development and Demonstration (RDD) Plans may be submitted for new sanitary landfills, existing sanitary landfills, or expansions of existing sanitary landfills.

1. Requirements.

a. No landfill owner or operator may commence a RDD Plan without prior approval by the department through either a new permit or major permit amendment. Major amendments for a RDD Plan that do not involve an increase in the landfill final grades or

a lateral expansion of the footprint will not be subject to the landfill expansion criteria in 9 VAC 20-80-250 and 9 VAC 20-80-500.

b. Operating permitted sanitary landfills that have exceeded groundwater protection standards at statistically significant levels in accordance with 9 VAC 20-80-300.B, from any waste unit on site shall have implemented a remedy in accordance with 9 VAC 20-80-310.C prior to the RDD Plan submittal. Operating permitted sanitary landfills that have an exceedance in gas migration in accordance with 9 VAC 20-80-280 shall have a gas control system in place per 9 VAC 20-80-280.E prior to the RDD Plan submittal.

c. RDD Plans may be submitted for items such as the addition of liquids in addition to leachate and gas condensate from the same landfill for accelerated decomposition of the waste mass; allowing run-on water to flow into the landfill waste mass; and allowing testing of the construction and infiltration performance of alternative final cover systems. An RDD Plan may be proposed for other measures to be taken to enhance stabilization of the waste mass.

d. All sanitary landfill units with an approved RDD Plan shall have a leachate collection system designed and constructed to maintain less than a 30-cm depth of leachate on the liner.

e. An owner or operator of a sanitary landfill that disposes of 20 tons of municipal solid waste per day or less, based on annual average, may not apply for an RDD Plan.

f. No landfill owner or operator may continue to implement an RDD Plan beyond any time limit placed in the initial plan approval or any renewal without issuance of written prior approval by the department. Justification for renewals shall be based upon information in annual and final reports as well as research and findings in technical literature.

g. RDD Plans shall be restricted to permitted sanitary landfills. Landfills for disposal of wastes, as listed in 9 VAC 20-80-250.C.16 and other wastes as approved, shall be designed with a composite liner, as required by 9 VAC 20-80-250.B.9 or B.10. The effectiveness of the liner system and leachate collection system shall be demonstrated in the plan. The effectiveness of the liner and leachate collection system shall be assessed at the end of the testing period, with comparison to the effectiveness of the systems at the start of the testing period.

h. RDD Plans may not include changes to the approved design and construction of subgrade preparation, liner system, leachate collection and removal systems, final cover system, gas and leachate systems outside the limits of waste, run-off controls, run-on controls, or environmental monitoring systems exterior to the waste mass.

i. Implementation of an approved research development and demonstration plan shall comply with the specific conditions of the RDD Plan as approved in the permit or permit amendment for the initial testing period and any renewal.

j. Structures and features exterior to the waste mass or waste final grades shall be removed at the end of the testing period, unless otherwise approved by the department in writing.

k. The RDD Plan may propose an alternate final cover installation schedule.

2. An RDD Plan shall include the following details and specifications. Processes other than adding liquids to the waste mass and leachate recirculation may be practiced in conjunction with the research, development and demonstration plan.

a. Initial applications for RDD Plans shall be submitted for review and approval prior to the initiation of the process to be tested. These Plans shall specify the process that will be tested, describe preparation and operation of the process, describe waste types and characteristics that the process will affect, describe desired changes and end points that the process is intended to achieve, define testing methods and observations of the process or waste mass that are necessary to assess effectiveness of the process, and include technical literature references and research which support use of the process. The Plans shall specify the time period for which the process will be tested. The Plans shall specify the additional information, operating experience, data generation or technical developments that the process to be tested is expected to generate.

b. The test period for the initial application shall be limited to a maximum of 3 years.

- c. Renewals of testing periods shall be limited to a maximum of 3 years each. The maximum number of renewals shall be limited to 3.
- d. Renewals shall require department review and approval of reports of performance and progress on achievement of goals specified in the RDD Plan.
- e. RDD Plans for addition of liquids, in addition to leachate and gas condensate from the same landfill, for accelerated decomposition of the waste mass and/or for allowing run-on water to flow into the landfill waste mass shall demonstrate that there is no increased risk to human health and the environment. The following minimum performance criteria shall be demonstrated.
1. Risk of contamination to groundwater and/or surface water will not be greater than the risk without an approved RDD Plan.
 2. Stability analysis demonstrating the physical stability of the landfill.
 3. Landfill gas collection and control in accordance with applicable Clean Air Act requirements (i.e. Title V, NSPS or EG rule, etc.).
 4. For RDD Plans which include the addition of off-site non-hazardous waste liquids to the landfill, the following information shall be submitted with the RDD Plan:

- (a) Demonstration of adequate facility liquid storage volume to receive the off-site liquid.
- (b) A list of proposed characteristics for screening the accepted liquids is developed, and;
- (c) The quantity and quality of the liquids are compatible with the RDD Plan.

If off-site non-hazardous liquids are certified by the off-site generator as storm water uncontaminated by solid waste, screening is not required for this liquid.

f. RDD Plans for testing of the construction and infiltration performance of alternative final cover systems shall demonstrate that there is no increased risk to human health and the environment. The proposed final cover system shall be as protective as the final cover system required by 9 VAC 20-80-250.E. The following minimum performance criteria shall be demonstrated:

1. No build-up of excess liquid in the waste and on the landfill liner;
2. Stability analysis demonstrating the physical stability of the landfill;
3. No moisture will escape from the landfill to the surface water and/or groundwater; and
4. Sufficient reduction in infiltration so that there will be no leakage of leachate from the landfill.

- g. RDD Plans that evaluate introduction of liquids in addition to leachate or gas condensate from the same landfill shall propose measures to be integrated with any approved leachate recirculation plan and compliance with requirements for leachate recirculation.
- h. RDD Plans shall include a description of warning symptoms and failure thresholds which will be used to initiate investigation, stand-by, termination, and changes to the process and any other landfill systems that might be affected by the process, such as gas extraction and leachate recirculation. Warning symptoms shall result in a reduction or suspension of liquids addition, leachate recirculation, investigation and changes to be implemented before resuming the process being tested. Failure thresholds shall result in termination of the process being tested, investigation and changes that will be submitted to the department for review and approval in writing prior to resumption of the process being tested.
- i. RDD Plans shall include an assessment of the manner in which the process to be tested might alter the impact that the landfill may have on human health or environmental quality. The assessment shall include both beneficial and deleterious effects that could result from the process.
- j. RDD Plans shall include a geotechnical stability analysis of the waste mass and an assessment of the changes that the implementation of the plan are expected to achieve. The geotechnical stability analysis and assessment shall be repeated at the end of testing

period, with alteration as needed to include parameters and parameter values derived from field measurements. The Plan shall define relevant parameters and techniques for field measurement.

k. RDD Plans shall propose monitoring parameters, frequencies, test methods, instrumentation, record-keeping and reporting to the department for purposes of tracking and verifying goals of the process selected for testing.

l. RDD Plans shall propose monitoring techniques and instrumentation for potential movements of waste mass and settlement of waste mass, including proposed time intervals and instrumentation, pertinent to the process selected for testing.

m. RDD Plans shall propose construction documentation, construction quality control and construction quality assurance measures, and recordkeeping for construction and equipment installation that is part of the process selected for testing.

n. RDD Plans shall propose operating practices and controls, staffing, monitoring parameters and equipment needed to support operations of the process selected for testing.

o. RDD Plans that include aeration of the waste mass shall include a temperature monitoring plan, a fire drill and safety program, instructions for use of liquids for control

of temperature and fires in the waste mass, and instructions for investigation and repair of damage to the liner and leachate collection system.

p. RDD Plans may include an alternate interim cover system and final cover installation schedule. The interim cover system shall be designed to account for weather conditions, slope stability, and leachate and gas generation. The interim cover shall also control, at a minimum, disease vectors, fires, odors, blowing litter, and scavenging.

3 Reporting. An annual report shall be prepared for each year of the testing period, including any renewal periods, and a final report shall be prepared for the end of the testing period. These reports shall assess the attainment of goals proposed for the process selected for testing, recommend changes, recommend further work, and summarize problems and their resolution. Reports shall include a summary of all monitoring data, testing data and observations of process or effects and shall include recommendations for continuance or termination of the process selected for testing. Annual reports shall be submitted to the department within three (3) months after the anniversary date of the approved permit or permit amendment. Final reports shall be submitted 60 days prior to the end of the testing period in order for evaluation by the department. If the department's evaluation indicates that the goals of the project have been met, are reliable and predictable, the department will provide a minor permit amendment to incorporate the continued operation of the project with the appropriate monitoring.

4. Termination. The department may require modifications to or immediate termination of the process being tested if any of the following conditions occur:

a. Significant and persistent odors;

b. Significant leachate seeps or surface exposure of leachate;

c. Significant leachate head on the liner;

d. Excessively acidic leachate chemistry or gas production rates or other monitoring data indicate poor waste decomposition conditions;

e. Instability in the waste mass;

f. Other persistent and deleterious effects.

5. The RDD Program is an optional participation program, the applicant must certify that they acknowledge that the program is optional; and that they are aware the department may provide suspension or termination of the program for any reasonable cause, without a public hearing. Notice of suspension or termination will be by letter for a cause related to a technical problem, nuisance problem, or for protection of human health or the environment as determined by the department.

Statutory Authority

§10.1-1402 of the Code of Virginia.

9VAC20-80-500. Permit application procedures.

A. Any person who proposes to establish a new solid waste management facility ("SWMF"), or modify an existing SWMF, shall submit a permit application to the department, using the procedures set forth in this section and other pertinent sections of this part.

B. Notice of intent.

1. To initiate the permit application process, any person who proposes to establish a new solid waste management facility ("SWMF"), or modify an existing SWMF, or to amend an existing permit shall file a notice of intent with the director stating the desired permit or permit amendment, the precise location of the proposed facility, and the intended use of the facility. The notice shall be in letter form and be accompanied by area and site location maps.

2. No application for a new solid waste management facility permit or application for an amendment for a non-captive industrial landfill to expand or increase capacity shall be deemed complete unless it is accompanied by DEQ Form DISC-01 and 02 (Disclosure Statement) for all key personnel.

3. No application for a new solid waste management facility permit or application for an amendment for a non-captive industrial landfill to expand or increase capacity shall be considered complete unless the notice of intent is accompanied by a current certification from the governing body of the county, city, or town in which the facility is to be located stating that the location and operation of the facility are consistent with all applicable ordinances. No certification shall be required for the application for an amendment or modification of an existing permit other than for a non-captive industrial landfill as

outlined above. DEQ Form SW-11-1 (Request for Local Government Certification) is provided for the use of the regulated community. Permit and Permit-by-rule applicants shall comply with the statutory requirements for consistency with solid waste management plans as recorded in §§ 10.1-1408.1.B.9, D.1, and R of the Code of Virginia.

4. If the location and operation of the facility is stated by the local governing body to be consistent with all its ordinances, without qualifications, conditions, or reservations, the applicant will be notified that he may submit his application for a permit. This application shall be submitted in two parts, identified as Part A and Part B.

5. If the applicant proposes to operate a new sanitary landfill or transfer station, the notice of intent shall include a statement describing the steps taken by the applicant to seek the comments of the residents of the area where the sanitary landfill or transfer station is proposed to be located regarding the siting and operation of the proposed sanitary landfill or transfer station. The public comment steps shall be taken prior to filing with the department the notice of intent.

a. The public comment steps shall include publication of a public notice once a week for two consecutive weeks in a newspaper of general circulation serving the locality where the sanitary landfill or transfer station is proposed to be located and holding at least one public meeting within the locality to identify issues of concern, to facilitate communication and to establish a dialogue between the applicant and persons who may be affected by the issuance of a permit for the sanitary landfill or transfer station.

b. At a minimum, the public notice shall include:

(1) A statement of the applicant's intent to apply for a permit to operate the proposed sanitary landfill or transfer station;

- (2) The proposed sanitary landfill or transfer station site location;
- (3) The date, time and location of the public meeting the applicant will hold; and
- (4) The name, address and telephone number of a person employed by an applicant who can be contacted by interested persons to answer questions or receive comments on siting and operation of the proposed sanitary landfill or transfer station.

c. The first publication of the public notice shall be at least 14 days prior to the public meeting date.

6. Disposal capacity guarantee. If the applicant proposes to construct a new sanitary landfill or expand an existing sanitary landfill, a signed statement must be submitted by the applicant guaranteeing that sufficient disposal capacity will be available in the facility to enable localities within the Commonwealth to comply with their solid waste management plans developed pursuant to 9VAC20-130 and certifying that such localities will be allowed to contract for and reserve disposal capacity in the facility. This provision does not apply to permit applications from one or more political subdivisions for new or expanded landfills that will only accept municipal solid waste generated within those jurisdictions or from other jurisdictions under an interjurisdictional agreement.

7. Host agreement. If the applicant proposes to construct a new sanitary landfill or expand an existing sanitary landfill, a certification from the local governing body must be provided indicating that a host agreement has been reached between the applicant and the host government or authority.

a. The host agreement shall include the following provisions at a minimum:

- (1) The amount of financial compensation the applicant will provide the host locality;
- (2) The daily travel routes and traffic volumes;

(3) The daily disposal limit; and

(4) The anticipated service area of the facility.

b. The host agreement shall contain a provision that the applicant will pay the full cost of a least one full-time employee of the host locality. The employee's responsibilities will include monitoring and inspecting waste disposal practices in the locality.

c. The host agreement shall provide that the applicant shall, when requested by the host locality, split air and water samples so that the host locality may independently test the samples, with all associated costs paid for by the applicant. All such sampling results shall be provided to the department.

d. No certification or host agreement is required if the owner and operator of the landfill is a locality or a service authority of which the local governing body is a member.

8. If the application is for a locality owned and operated sanitary landfill, or the expansion of such a landfill, the applicant shall provide information on:

a. The daily travel routes and traffic volumes;

b. The daily disposal limit; and

c. The service area of the facility.

9. If the application is for a new solid waste management facility or an amendment allowing a facility expansion or an increase in capacity, the director shall evaluate whether there is a need for the additional capacity in accordance with §10.1-1408.1 D 1 of the Code of Virginia. The information in either subdivision 9 a or 9 b must be provided with the notice of intent to assist the director with the required investigation and analysis. Based on the information submitted, the owner or operator will demonstrate how the additional capacity will be utilized over the life of the facility.

a. For any solid waste management facility including a sanitary landfill, information demonstrating that there is a need for the additional capacity. Such information may include:

- (1) The anticipated area to be served by the facility;
- (2) Similar or related solid waste management facilities that are in the same service area and could impact the proposed facility, and the capacity and service life of those facilities;
- (3) The present quantity of waste generated within the proposed service area;
- (4) The waste disposal needs specified in the local solid waste plan;
- (5) The projected future waste generation rates for the anticipated area to be served during the proposed life of the facility;
- (6) The recycling, composting or other waste management activities within the proposed service area;
- (7) The additional solid waste disposal capacity that the facility would provide to the proposed area of service; and
- (8) Information demonstrating that the capacity is needed to enable localities to comply with solid waste plans developed pursuant to §10.1-1411 of the Code of Virginia.
- (9) Any additional factors that provide justification for the additional capacity provided by the facility.

b. As an alternative, for sanitary landfills, based on current or projected disposal rates, information demonstrating there is less than 10 years of capacity remaining in the facility and information demonstrating either of the following:

(1) The available permitted disposal capacity for the state is less than 20 years based on the most current reports submitted pursuant to the Waste Information and Assessment Program in 9VAC20-130-165; or

(2) The available permitted disposal capacity is less than 20 years in either:

(a) The planning region, or regions, immediately contiguous to the planning region of the host community.

(b) The facilities within a 75 mile radius of the proposed facility.

C. Part A application. Part A application provides the information essential for assessment of the site suitability for the proposed facility. It contains information on the proposed facility to be able to determine site suitability for intended uses. It provides information on all siting criteria applicable to the proposed facility.

1. The applicant shall complete, sign and submit three copies of the Part A application containing required information and attachments as specified in 9VAC20-80-510 to the director.

2. The Part A application will be reviewed for completeness. The applicant will be notified within ~~fifteen~~ 30 days whether the application is administratively complete or incomplete. If complete information is not provided within ~~thirty~~ 60 days after the applicant is notified, or an alternate timeframe approved by the department, the application will be returned to the applicant without further review. Subsequent resubmittals of the application, submitted after eighteen months from the date of the department's response letter, shall be considered as a new application.

3. Upon receipt of a complete Part A application, the department shall conduct a technical review of the submittal. Additional information may be required or the site may be

visited before the review is completed. The director shall notify the applicant in writing of approval or disapproval of the Part A application or provide conditions to be made a part of the approval.

4. For sanitary landfills, the director's notification must indicate that the site on which the landfill will be located is suitable for the construction and operation of a landfill. In making this determination, the director will consider the information presented in the site hydrogeologic and geotechnical report (9VAC20-80-510 F), the landfill impact statement (9VAC20-80-510 H 1) and the adequacy of transportation facilities (9VAC20-80-510 G). The director may also consider other factors at his discretion.

5. In case of the approval or conditional approval, the applicant may submit the Part B application provided the required conditions are addressed in the submission.

D. Part B application. The Part B application involves the submission of the detailed engineering design and operating plans for the proposed facility.

1. The applicant, after receiving Part A approval, may submit to the department a Part B application to include the required documentation for the specific solid waste management facility as provided for in 9VAC20-80-520, 9VAC20-80-530, or 9VAC20-80-540. The Part B application and supporting documentation shall be submitted in three copies and must include the financial assurance documentation as required by 9VAC20-70. Until the closure plans are approved and a draft permit is being prepared, the applicant must provide evidence of commitment to provide the required financial assurance from a financial institution or insurance company. If financial assurance is not provided within 30 days of notice by the director, the permit shall be denied.

2. The Part B application shall be reviewed for administrative completeness before technical evaluation is initiated. The applicant shall be advised in writing within thirty days whether the application is complete or what additional documentation is required. The Part B application will not be evaluated until an administratively complete application is received.

3. The administratively complete application will be coordinated with other state agencies according to the nature of the facility. The comments received shall be considered in the permit review by the department. The application will be evaluated for technical adequacy and regulatory compliance. In the course of this evaluation, the department may require the applicant to provide additional information. At the end of the evaluation, the department will notify the applicant that the application is technically and regulatorily adequate or that the department intends to deny the application.

4. The procedures addressing the denial are contained in 9VAC20-80-580.

E. Permit issuance.

1. If the application is found to be technically adequate and in full compliance with this chapter, a draft permit shall be developed by the department.

2. Copies of the draft permit will be available for viewing at the applicant's place of business or at the regional office of the department, or both, upon request. A notice of the availability of the ~~proposed~~ draft permit shall be made in a newspaper with general circulation in the area ~~where~~ of the facility ~~is to be located~~. A copy of the notice of availability will be provided to the chief administrative officer of all cities and counties that are contiguous to the host community. ~~A public hearing will be scheduled and the notice shall be published at least 30 days in advance of the public hearing on the draft~~

~~permit. Copies of the proposed draft permit will be available for viewing at the applicant's place of business or at the regional office of the department, or both, upon request in advance of the public hearing.~~

3. If the application is for a new landfill or an increase in landfill capacity, then the department shall hold a public hearing and the notice above will include such information.

4. For any application (other than 3 above), the notice will include the opportunity to request a public hearing. The department shall hold a public hearing on the draft permit whenever the department finds, on the basis of requests, that:

a. there is a significant public interest in the issuance, denial, modification or revocation of the permit in question;

b. there are substantial, disputed issues relevant to the issuance, denial, modification or revocation of the permit in question; and

c. the action requested is not, on its face, inconsistent with, or in violation of, these regulations, the Waste Management Act, or federal law or regulations.

5. The department also may hold a public hearing when it is believed that such a hearing might clarify one or more issues involved in a permit decision.

~~3.~~ 6. If a public hearing is to be held, the department shall hold-convene it the announced public hearing 30 days or more after the notice is published in the local newspaper. The public hearing shall be conducted by the department within the local government jurisdiction where of the facility is to be located. A comment period shall extend for a 15-day period after the conclusion of the public hearing.

~~4.~~ 7. A ~~final~~ decision to permit, to deny a permit or to amend the draft permit shall be rendered by the director within 30 days of the close of the hearing comment period.

~~5.~~ 8. The permit applicant and the persons who commented during the public participation period shall be notified in writing of the decision on the draft permit. That decision may include denial of the permit (see also 9VAC20-80-580), issuance of the permit as drafted, or amendment of the draft permit and issuance.

~~6.~~ 9. No permit for a new solid waste management facility or an amendment allowing a facility expansion or an increase in capacity shall be approved by the director unless the facility meets the provisions of §10.1-1408.1 D of the Code of Virginia. Before issuing a permit the director shall make a determination in writing in accordance with the provisions of §10.1-1408.1 D of the Code of Virginia. The director may request updated information during the review of the permit application if the information on which the director's determination is based is no longer current. If, based on the analysis of the materials presented in the permit application, the determination required in §10.2-1408.1 D cannot be made, the application will be denied in accordance with 9VAC20-80 580 A 6.

~~7.~~ 10. Any permit for a new sanitary landfill and any permit amendment authorizing expansion of an existing sanitary landfill shall incorporate the conditions required for a disposal capacity guarantee in §10.1-1408.1 P of the Code of Virginia. This provision does not apply to permit applications from one or more political subdivisions that will only accept waste from within those political subdivisions' jurisdiction or municipal solid waste generated within other political subdivisions pursuant to an interjurisdictional agreement.

Statutory Authority

§10.1-1402 of the Code of Virginia, 42 USC §6941 et seq., and 40 CFR Part 258.

9VAC20-80-510. Part A permit application.

The following information shall be included in the Part A of the permit application for all solid waste management facilities unless otherwise specified in this section.

A. The Part A permit application consists of a letter stating the type of the facility for which the permit application is made and the certification required in subsection I of this section. All pertinent information and attachments required by this section are provided on DEQ Form SW 7-3 (Part A Permit Application).

B. A key map of the Part A permit application, delineating the general location of the proposed facility, shall be prepared and attached as part of the application. The key map shall be plotted on a seven and one-half minute United States Geological Survey topographical quadrangle. The quadrangle shall be the most recent revision available, shall include the name of the quadrangle and shall delineate a minimum of one mile from the perimeter of the proposed facility boundaries. One or more maps may be utilized where necessary to insure clarity of the information submitted.

C. A near-vicinity map shall be prepared and attached as part of the application. The vicinity map shall have a minimum scale of one inch equals 200 feet (1" = 200'). The vicinity map shall delineate an area of 500 feet from the perimeter of the property line of the proposed facility. The vicinity maps may be an enlargement of a United States Geological Survey topographical quadrangle or a recent aerial photograph. The vicinity map shall depict the following:

1. All homes, buildings or structures including the layout of the buildings which will comprise the proposed facility;
2. The facility boundary;

3. The limits of the actual disposal operations within the boundaries of the proposed facility, if applicable;
4. Lots and blocks taken from the tax map for the site of the proposed facility and all contiguous properties;
5. The base floodplain, where it passes through the map area; or, otherwise, a note indicating the expected flood occurrence period for the area;
6. Existing land uses and zoning classification;
7. All water supply wells, springs or intakes, both public and private;
8. All utility lines, pipelines or land based facilities (including mines and wells); and
9. All parks, recreation areas, surface water bodies, dams, historic areas, wetlands areas, monument areas, cemeteries, wildlife refuges, unique natural areas or similar features.

D. Except in the case of a local governing body or a public service authority possessing a power of eminent domain, copy of lease or deed (showing page and book location) or certification of ownership of the site, the department will not consider an application for a permit from any person who does not demonstrate legal control over the site for a period of the permit life. A documentation of an option to purchase will be considered as a temporary substitute for a deed; however, the true deed must be provided to the department before construction at the site begins.

E. For solid waste disposal facilities regulated under Part V (9VAC20-80-240 et seq.) of this chapter, site hydrogeologic and geotechnical report by geologist or engineer registered for practice in the Commonwealth.

1. The site investigation for a proposed landfill facility shall provide sufficient information regarding the geotechnical and hydrogeologic conditions at the site to allow a

reasonable determination of the usefulness of the site for development as a landfill. The geotechnical exploration efforts shall be designed to provide information regarding the availability and suitability of onsite soils for use in the various construction phases of the landfill including liner, cover, drainage material, and cap. The hydrogeologic information shall be sufficient to determine the characteristics of the uppermost aquifer underlying the facility. Subsurface investigation programs conducted shall meet the minimum specifications here.

a. Borings shall be located to identify the uppermost aquifer within the proposed facility boundary, determine the ability to perform ground water monitoring at the site, and provide data for the evaluation of the physical properties of soils and soil availability. Borings completed for the proposed facility shall be sufficient in number and depth to identify the thickness of the uppermost aquifer and the presence of any significant underlying impermeable zone. Impermeable zone shall not be fully penetrated within the anticipated fill areas, whenever possible. The number of borings shall be at a minimum in accordance with Table 7.1 as follows:

Table 7.1

Acreage	Total Number of Borings
Less than 10	4
10 - 49	8
50 - 99	14
100 - 200	20
More than 200	24 + 1 boring for each additional 10 acres

- b. The department reserves the right to require additional borings in areas in which the number of borings required by Table 7.1 is not sufficient to describe the geologic formations and ground water flow patterns below the proposed solid waste disposal facility.
- c. In highly uniform geological formations, the number of borings may be reduced, as approved by the department.
- d. The borings should employ a grid pattern, wherever possible, such that there is, at a minimum, one boring in each major geomorphic feature. The borings pattern shall enable the development of detailed cross sections through the proposed landfill site.
- e. Subsurface data obtained by borings shall be collected by standard soil sampling techniques. Diamond bit coring, air rotary drilling or other appropriate methods, or a combination of methods shall be used as appropriate to characterize competent bedrock. The borings shall be logged from the surface to the lowest elevation (base grade) or to bedrock, whichever is shallower, according to standard practices and procedures. In addition, the borings required by Table 7.1 shall be performed on a continuous basis for the first 20 feet below the lowest elevation of the solid waste disposal facility or to the bed rock. Additional samples as determined by the registered geologist or engineer shall be collected at five-foot intervals thereafter.
- f. Excavations, test pits and geophysical methods may be employed to supplement the soil boring investigation.
- g. At a minimum, four of the borings shall be converted to water level observations wells, well nests, piezometers or piezometer nests to allow determination of the rate and direction of ground water flow across the site. All ground water monitoring points or

water level measurement points shall be designed to allow proper abandonment by backfilling with an impermeable material. The total number of wells or well nests shall be based on the complexity of the geology of the site.

h. Field analyses shall be performed in representative borings to determine the in situ hydraulic conductivity of the uppermost aquifer.

i. All borings not to be utilized as permanent monitoring wells, and wells within the active disposal area, shall be sealed and excavations and test pits shall be backfilled and properly compacted to prevent possible paths of leachate migration. Boring sealing procedures shall be documented in the hydrogeologic report.

2. The geotechnical and hydrogeologic reports shall at least include the following principal sections:

a. Field procedures. Boring records and analyses from properly spaced borings in the facility portion of the site. Final boring logs shall be submitted for each boring, recording soils or rock conditions encountered. Each log shall include the type of drilling and sampling equipment, date the boring was started, date the boring was finished, a soil or rock description in accordance with the United Soil Classification System or the Rock Quality Designation, the method of sampling, the depth of sample collection, the water levels encountered, and the Standard Penetration Test blow counts, if applicable. Boring locations and elevations shall be surveyed with a precision of 0.01 foot. At least one surveyed point shall be indelibly marked by the surveyor on each well. All depths of soil and rock as described within the boring log shall be corrected to National Geodetic Vertical Datum, if available.

b. Geotechnical interpretations and report including complete engineering description of the soil units underlying the site.

(1) Soil unit descriptions shall include estimates of soil unit thickness, continuity across the site, and genesis. Laboratory determination of the soil unit's physical properties shall be discussed.

(2) Soil units that are proposed for use as a drainage layer, impermeable cap or impermeable liner material shall be supported by laboratory determinations of the remolded permeability. Remolded hydraulic conductivity tests require a Proctor compaction test (ASTM D698) soil classification liquid limit, plastic limit, particle size distribution, specific gravity, percent compaction of the test sample, remolded density and remolded moisture content, and the percent saturation of the test sample. Proctor compaction test data and hydraulic conductivity test sample data should be plotted on standard moisture-density test graphs.

(3) The geotechnical report shall provide an estimate of the available volume of materials suitable for use as liner, cap, and drainage layer. It should also discuss the anticipated uses of the on-site materials, if known.

c. Hydrogeologic report.

(1) The report shall include water table elevations, direction and calculated rate of ground water flow and similar information on the hydrogeology of the site. All raw data shall be submitted with calculations.

(2) The report shall contain a discussion of field test procedures and results, laboratory determinations made on undisturbed samples, recharge areas, discharge areas, adjacent or areal usage, and typical radii of influence of pumping wells.

(3) The report shall also contain a discussion of the regional geologic setting, the site geology and a cataloging and description of the uppermost aquifer from the site investigation and from referenced literature. The geologic description shall include a discussion of the prevalence and orientation of fractures, faults, and other structural discontinuities, and presence of any other significant geologic features. The aquifer description should address homogeneity, horizontal and vertical extent, isotropy, the potential for ground water remediation, if required, and the factors influencing the proper placement of a ground water monitoring network.

(4) The report shall include a geologic map of the site prepared from one of the following sources as available, in order of preference:

- (a) Site specific mapping prepared from data collected during the site investigation;
- (b) Published geologic mapping at a scale of 1:24,000 or larger;
- (c) Published regional geologic mapping at a scale of 1:250,000 or larger; or
- (d) Other published mapping.

(5) At least two generally orthogonal, detailed site specific cross sections, which shall sufficiently describe the geologic formations identified by the geologic maps prepared in accordance with subdivision 2 c (4) of this subsection at a scale which clearly illustrates the geologic formations, shall be included in the hydrogeologic report. Cross sections shall show the geologic units, approximate construction of existing landfill cells base grades, water table, and surficial features along the line of the cross section. Cross section locations shall be shown on an overall facility map.

(6) Potentiometric surface maps for the uppermost aquifer which sufficiently define the ground water conditions encountered below the proposed solid waste disposal facility

area based upon stabilized ground water elevations. Potentiometric surface maps shall be prepared for each set of ground water elevation data available. The applicant shall include a discussion of the effects of site modifications, seasonal variations in precipitation, and existing and future land uses of the site on the potentiometric surface.

(7) If a geological map or report from either the Department of Mines, Minerals, and Energy or the U.S. Geological Survey is published, it shall be included.

F. For solid waste management facilities regulated under Part VI (9VAC20-80-320 et seq.) of this chapter:

1. A cataloging and description of aquifers, geological features or any similar characteristic of the site that might affect the operation of the facility or be affected by that operation.

2. If a geological map or report from either the Department of Mines, Minerals, and Energy or the U.S. Geological Survey is published, it shall be included.

G. For sanitary landfills, a VDOT adequacy report prepared by the Virginia Department of Transportation. As required under §10.1-1408.4 A 1 of the Code of Virginia, the report will address the adequacy of transportation facilities that will be available to serve the landfill, including the impact of the landfill on the local traffic volume, road congestion, and highway safety.

H. For sanitary landfills, a Landfill Impact Statement (LIS).

1. A report must be provided to the department that addresses the potential impact of the landfill on parks, recreational areas, wildlife management areas, critical habitat areas of endangered species as designated by applicable local, state, or federal agencies, public water supplies, marine resources, wetlands, historic sites, fish and wildlife, water quality,

and tourism. This report shall comply with the statutory requirements for siting landfills in the vicinity of public water supplies or wetlands as recorded in §§ 10.1-1408.4 and 10.1-1408.5 of the Code of Virginia.

2. The report will include a discussion of the landfill configuration and how the facility design addresses any impacts identified in the report required under subdivision 1 of this subsection.

3. The report will identify all of the areas identified under subdivision 1 of this subsection that are within five miles of the facility.

I. A signed statement by the applicant that he has sent written notice to all adjacent property owners or occupants that he intends to develop a SWMF on the site, a copy of the notice and the names and addresses of those to whom the notices were sent.

J. Information demonstrating that the facility is consistent with the local solid waste management plan including:

1. A discussion of the role of the facility in solid waste management within the solid waste planning region;

2. A description of the additional solid waste disposal capacity that the facility would provide to the proposed area of service;

3. Specific references to local solid waste management plan where discussions of the facility are provided.

K. One or more of the following indicating that the public interest would be served by a new facility or a facility expansion, which includes:

1. Cost effective waste management for the public within the service area comparing the costs of a new facility or facility expansion to waste transfer, or other disposal options;

2. The facility provides protection of human health and safety and the environment;
3. The facility provides alternatives to disposal including reuse or reclamation;
4. The facility allows for the increased recycling opportunities for solid waste;
5. The facility provides for energy recovery or the subsequent use of solid waste, or both, thereby reducing the quantity of solid waste disposed;
6. The facility will support the waste management needs expressed by the host community; or
7. Any additional factors that indicate that the public interest would be served by the facility.

Statutory Authority

§10.1-1402 of the Code of Virginia, 42 USC §6941 et seq., and 40 CFR Part 258.