TITLE 9. ENVIRONMENT.

VIRGINIA WASTE MANAGEMENT BOARD

9 VAC 20-80-10 et seq. Solid Waste Management Regulations.

Draft Amendment 3

Statutory Authority: Chapter 14 (§ 10.1-1400 et seq.) of Title 10.1 of the Code of Virginia.

Effective Date: May 23, 2001, Amendment 2

PART I.

DEFINITIONS.

9 VAC 20-80-10. 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, or related commercial preparation of farm products for marketing.

“Airport” means, for the purpose of this chapter, 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 fluction, 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 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.

“Coal combustion by-products” means residuals, including fly ash, bottom ash, boiler slag, and ~~flue gas desulfurization residue~~ 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 9 VAC 20-80-250 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 defined by the Virginia Sewerage Regulations (12 VAC 5-580-10 et seq.).

“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 9 VAC 20-60-120. 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.

“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 9 VAC 20-80-140 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 ~~Appendix 7.1~~ 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 9 VAC 20-80-200, 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.

"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, ~~Appendix~~ Table 5.1.

"Hazardous waste" means a "hazardous waste" as described by the Virginia Hazardous Waste Management Regulations (9 VAC 20-60-10 et seq.).

"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 which 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 9 VAC 20-60-10 et seq.

"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 (septage) 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: (a) 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 (9 VAC 20-60-10 et seq.); (b) Non-liquids 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; (c) 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, and leachate discharged into a waste water collection system is regulated as industrial waste 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.

"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.

“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 (9 VAC 20-101-10 et seq.).

“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 9 VAC 20-80-180.

"Operating Record" means records required to be maintained in accordance with the facility permit or this part.

"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 which is processed to be used as fuel to produce energy.

“Reclaimed material” means a material which 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 (18 VAC 10-20-10 et seq.).

“Regulated hazardous waste” means a solid waste that is a hazardous waste, as defined in the Virginia Hazardous Waste Management Regulations (9 VAC 20-60-10 et seq.), 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 (9 VAC 20-120-10 et seq.) 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 (9 VAC 20-80-170 et seq.) or V (9 VAC 20-80-240 et seq.) of this chapter or under the Voluntary Remediation Regulations (9 VAC 20-160-10 et seq.). 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 9 VAC 20-60-10 et seq., 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 (9 VAC 20-160-10 et seq.). 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.

“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 (9 VAC 20-80-140 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 ~~or permitted for actual burial~~.

“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 (9 VAC 20-80-630 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. A solid waste is not being accumulated speculatively when it can be used, reused or reclaimed, has a feasible means of use, reuse, or reclamation available and 75% of the solid waste accumulated is being removed from the facility annually.

“Stabilized compost” means a compost that has passed the stability criteria outlined in 9 VAC 20-80-330 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 which is constructed primarily of non-earthen materials which 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 ¼ inches to 4 inches in any dimension. Tire chips contain no wire protruding more than ¼ 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 9 VAC 20-101-10 et seq.

“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 (9 VAC 25-31-10 et seq.), 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 9 VAC 5-40-890.

“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 9 VAC 20-150-10 et seq. 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 ~~that fraction of municipal solid waste that consists of grass clippings, leaves, brush and tree prunings arising from general landscape maintenance.~~ 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.

PART II.

GENERAL INFORMATION.

9 VAC 20-80-60. Applicability of chapter.

A. This chapter applies to all persons who manage or dispose of solid wastes as defined in Part III (9 VAC 20-80-140 et seq.) of this chapter.

~~B. Owners and operators of all new disposal facilities and units regulated under Part V (9 VAC 20-80-240 et seq.) of this chapter and all existing storage and treatment facilities and units regulated under Part VI (9 VAC 20-80-320 et seq.) of this chapter shall comply with all provisions of this chapter. Owners and operators of existing disposal facilities and units may be partially exempt from certain specific requirements as shown in subdivisions 1 through 4 of this subsection.~~

~~1. Existing sanitary landfills.~~

~~Note: Facilities described in this subsection are subject to prioritization and a schedule for closure pursuant to § 10.1-1413.2 of the Code of Virginia.~~

~~a. Except as provided for in subdivision 1 b of this subsection, all existing sanitary landfill facilities and units shall comply with all provisions of this chapter.~~

~~b. Those facilities which 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, provided that the facility is in compliance with the requirements for liners and leachate control in effect at the time of permit issuance, and further provided that on or before October 9, 1993, the owner or operator of the solid waste management facility has submitted to the director:~~

~~(1) 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;~~

~~(2) 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:~~

~~(a) That the facility is not an open dump;~~

~~(b) That the facility does not pose a substantial present or potential hazard to human health and the environment; and~~

~~(c) 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~~

~~(3) A statement signed by the owner or operator:~~

~~(a) That the facility complies with applicable financial assurance regulations; and~~

~~(b) Estimating when the facility will reach its vertical design capacity~~

~~c. 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.~~

~~d. The provisions of subdivision 1 b of this subsection are not applicable to any sanitary landfill facility or unit undergoing lateral expansion after October 9, 1993.~~

B. All facilities which 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 10.1-1413.1 of the Code of Virginia, 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. 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.

4. The provisions of subdivision 1 b of this subsection are not applicable to any municipal solid waste landfill unit undergoing lateral expansion after October 9, 1993. "Municipal solid waste landfill unit" is defined in 9 VAC 20-80-180 A.

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

~~2.~~ 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 ~~2 b~~ 1 of this subsection.

~~b. Facilities which 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 nonhazardous industrial waste, provided that the facility is in compliance with the requirements for liners and leachate control in effect at the time of permit issuance until they have reached their vertical design capacity or the limits of the disposal area specified in the permit.~~

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 ~~2 b~~ 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 9 VAC 20-80-270 A.

~~d. Facilities, or portions thereof, which have reached their vertical design capacity shall be closed in compliance with 9 VAC 20-80-270 E.~~

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.

~~3.~~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 ~~3 b~~ 2 of this subsection.

~~b. Facilities which 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 nonhazardous industrial waste, until they have reached their vertical design capacity or the limits of the disposal area specified in the permit, provided that:~~

~~(1) The facility accepts only industrial waste streams which the facility has lawfully accepted prior to July 1, 1995, or other nonhazardous industrial waste as approved by the department on a case-by-case basis; and~~

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 9 VAC 20-80-270 B.

~~(2)~~ c. Prior to the expansion of any such facility, the owner or operator submits to the director 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 9 VAC 20-80-180 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.

~~c.~~d. Owners or operators of facilities which are authorized under subdivision ~~3 b~~ 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 9 VAC 20-80-270 A.

~~d. Facilities, or portions thereof, which have reached their vertical design capacity shall be closed in compliance with 9 VAC 20-80-270 E.~~

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.

~~4.~~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 ~~4 b~~ 3 of this subsection.

~~b. Facilities which were permitted prior to March 15, 1993, and upon which solid waste has been disposed of prior to October 9, 1993, may:~~

~~(1) Continue to receive solid waste until they have reached their vertical design capacity, provided that the facility is in compliance with the requirements for liners and leachate control in effect at the time of permit issuance, and further provided that on or before October 9, 1993, the owner or operator of the solid waste management facility have 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, has concluded that the (i) facility is not an open dump; (ii) facility does not pose a substantial present or potential hazard to human health and the environment; and (iii) 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 (i) that the facility complies with applicable financial assurance regulations and (ii) estimating when the facility will reach its vertical design capacity.~~

~~(d) 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; or~~

~~(2) Expand laterally beyond the waste disposal boundaries existing on October 9, 1993, provided that:~~

~~(a)~~ 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.~~There is first installed, in such expanded areas, liners and leachate control systems meeting the applicable requirements of 9 VAC 20-80-260 B; and~~ Liners and leachate collection systems constructed beyond the waste boundaries existing on October 9, 1993 shall be constructed in accordance with the requirements of 9 VAC 20-80-260 B.

~~(b)~~ c. Prior to the expansion of any such facility, the owner or operator submits to the director 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 9 VAC 20-80-180 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.

c. Owners or operators of facilities which are authorized under subdivision 4 b (2) of this subsection to accept waste for disposal beyond the ~~waste boundaries~~ 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 9 VAC 20-80-260 A and B.

d. Facilities, or portions thereof, which have reached their vertical design capacity shall be closed in compliance with 9 VAC 20-80-260 E.

e. Facilities authorized for expansion in accordance with subdivision 2c 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.

5. Facilities or units undergoing expansion in accordance with the partial exemptions created by subdivision 1 b, 2 b, 3 b, or 4 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 (9 VAC 20-60-10 et seq.), 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 (9 VAC 20-80-630 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.

6. Nothing in subdivisions 1 b, 2 b, 3 b, and 4 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 (9 VAC 20-80-480 et seq.) of this chapter.

C. 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 ~~May 23, 2001~~[effective date of regulation]. Where necessary conflicts exist between the existing facility permit and the new requirements of the regulations, the regulations shall supercede 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 (9 VAC 20-80-730 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 facilities will be required to implement a control program for unauthorized waste in accordance with the provisions of 9 VAC 20-80-113 by November 19, 2001. A written description of the program required by 9 VAC 20-80-113 will be placed in the operating record within that timeframe. In the case of sanitary landfills the written description will also incorporate the unauthorized waste inspection program required under 9 VAC 20-80-250 C 1~~However, all sanitary landfills and incinerators that accept waste from states other than Virginia must submit the materials required under 9 VAC 20-80-113 D by [180 days from the effective date of the regulation].

D. 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 ~~by owners of~~ at a single-family ~~residences~~ 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. ~~Land application by surface spreading or incorporation into soil of wastes~~ 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 ~~to include diesel fuels, heating oil, kerosene, gasoline, hydraulic fluids, jet engine fuel, and motor oil,~~ 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. ~~Off-site treatment of contaminated soil is regulated under Part VI of this chapter.~~

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.

E. 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 (9 VAC 20-80-10 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.

9 VAC 20-80-80. Open dumps.

A. Prohibition.

1. No person shall own, operate, or allow to be operated on his property any sanitary landfill or other facility for the disposal, treatment or storage of solid waste in a manner that constitutes open dumping as provided for in Part IV (9 VAC 20-80-170 et seq.) of this chapter.

2. No person shall dispose of solid waste in open dumps as defined in Part IV of this chapter.

B. Any person who violates subsection A of this section shall immediately cease accepting additional wastes and shall initiate such removal ,cleanup ~~or corrective~~ , closure in place, or alternative remedial actions as are required by Part IV of this chapter to alleviate the conditions that cause the facility to be classified as an open dump or to take other appropriate measures to abate improper management of waste.

9 VAC 20-80-90. Unpermitted facilities.

A. Prohibitions and duties.

1. No person shall operate any sanitary landfill or other facility for the disposal, treatment or storage of solid waste without a permit from the director.

2. No person shall allow waste to be disposed of or otherwise managed on his property without a permit from the director.

3. It shall be the duty of all persons to dispose of or otherwise manage their solid waste in a legal manner.

B. Any person who violates 9 VAC 20-80-90 A shall immediately cease treatment. storage, or disposal of any additional wastes and shall initiate such removal, cleanup, ~~or corrective~~ closure in place, or alternative remedial actions as are required by Part IV of this chapter.

9 VAC 20-80-100. Enforcement and appeal.

A. All administrative enforcement and appeals taken from actions of the director relative to the provisions of this chapter shall be governed by the Virginia Administrative Process Act.

B. The Virginia Waste Management Board or the director may enforce the provisions of this chapter utilizing all applicable procedures under the law. The powers of the board and the director include, but are not limited to, those established under Chapter 11.1 (§ 10.1-1182 et seq. (especially in § 10.1-1186)) and in Article 8 (§ 10.1-1455 et seq.) of Chapter 14 of Title 10.1 of the Code of Virginia. ~~In these~~ These sections ~~are described~~ describe the right of entry for

inspections, the issuance of orders, penalties, injunctions, and other provisions and procedures for enforcement of these regulations.

9 VAC 20-80-105. Ten-year permit review.

~~C.~~ The director shall review and issue written findings on the environmental compliance history of each permittee, material changes, if any, in key personnel, and technical limitations, standards, or regulations on which the original permit was based. The time period for review of each permit shall be once every 10 years. If, upon such review, the director finds that repeated material or substantial violations of the permittee or material changes in the permittee's key personnel would make continued operation of the facility not in the best interests of human health or the environment, the director shall amend or revoke the permit, in accordance with provisions of Part VII (9 VAC 20-80-480 et seq.) of this chapter. Whenever such review is undertaken, the director may amend the permit to include additional limitations, standards, or conditions when the technical limitations, standards, or regulations on which the original permit was based have been changed by statute or amended by regulation or when any of the conditions in § 10.1-1409 B of the Virginia Waste Management Act exist. The director may deny, revoke, or suspend any permit for any of the grounds listed under § 10.1-1409 A of the Code of Virginia.

~~1.~~ A. For facilities in existence prior to July 1, 1991, the first review will be completed by July 1, 2001.

~~2.~~ B. For facilities permitted on or after July 1, 1991, the first review must be completed within 10 years of the anniversary date of permit issuance.

~~3.~~ C. For facilities that have previously undergone review, each subsequent review will be at least once every 10 years.

9 VAC 20-80-110. Public participation.

A. All permits for solid waste management facilities will be subject to public participation, as specified in Part VII (9 VAC 20-80-480 et seq.) of this chapter.

B. Amendments or modifications to solid waste management facility permits shall be subject to public participation in accordance with Part VII of this chapter.

C. Dockets of all permitting actions, enforcement actions, and administrative actions relative to this chapter shall be available to the public for review, consistent with the Commonwealth of Virginia Administrative Process Act, Virginia Freedom of Information Act, and the provisions of this chapter.

D. All reports and related materials received from the regulated entity, as required by this chapter, shall be open to the public for review in accordance with the Virginia Freedom of Information Act (§ 2.1-340 et seq. of the Code of Virginia) and Uniform Trade Secrets Act (§ 59.1-336 et seq. of the Code of Virginia).

E. Public participation in the compliance evaluation and enforcement programs is encouraged. The department will:

1. Investigate all citizen complaints and provide written responses to ~~all citizen complaints addressed to the department~~ all signed, written complaints from citizens, concerning matters within the board's purview;

2. Not oppose intervention by any citizen in a suit brought before a court by the department as a result of the enforcement action; and

3. Publish a notice in major daily or weekly newspaper of general circulation in the area and on the department's Internet web site; and provide at least 30 days of public comment on proposed settlements of civil enforcement actions except where the settlement requires some immediate action. Where a public comment period is not held prior to the settlement of an enforcement action, public notice will still be provided following the settlement.

9 VAC 20-80-113. Control program for unauthorized waste.

A. All facilities are required to implement a control program for unauthorized waste in accordance with the provisions of this section by November 19, 2001. A written description of the program required by this section will be placed in the operating record. In the case of sanitary landfills the written description will also incorporate the unauthorized waste inspection program required under 9 VAC 20-80-250 C 1. The facility owner or operator shall institute a control program (including measures such as signs at all maintained access points indicating hours of operation and the types of solid waste accepted and not accepted, monitoring, alternate collection programs, passage of local laws, etc.) to assure that only solid waste authorized by the department to be treated, disposed of or transferred at the facility is being treated, disposed of or transferred at that facility. The facility owner or operator must develop and implement a program to teach the facility's staff to recognize, remove and report receipt of solid waste not authorized by the department to be treated, disposed of or transferred at the facility.

B. If solid waste not authorized by the department to be treated, disposed of or transferred at the facility is observed in the solid waste at the facility or delivered to the facility, the facility owner or operator may refuse to accept the waste. If the owner or operator has accepted the waste, the owner or operator shall remove it, segregate it, and provide to the department a record identifying that waste and its final disposition. Records of each incident shall be available for department review. Any unauthorized waste accepted by the facility owner or operator shall be managed in accordance with applicable federal or state laws and regulations.

C. Solid waste not authorized by the department to be treated, disposed of or transferred at the facility that is segregated shall be adequately secured and contained to prevent leakage or contamination of the environment. The

facility owner or operator shall cause it to be removed as soon as practicable, but not to exceed 90 days after discovery, by a person authorized to transport such waste to a facility approved to receive it for treatment, disposal or transfer.

D. Facilities receiving waste generated outside of Virginia. All sanitary landfills and incinerators receiving waste generated outside of Virginia shall submit to the department information on the regulation of waste for each state from which they receive waste. The materials submitted shall include regulatory and statutory language and citations sufficient for the department to determine if the state's laws or regulations allow for the disposal or incineration of wastes at municipal solid waste facilities that Virginia's laws and regulations prohibit or restrict. Sanitary landfills and incinerators receiving waste from states with less stringent regulatory schemes shall comply with the increased random inspection provisions in 9 VAC 20-80-250-C 1 b. This information shall be submitted to the department by [180 days from the effective date of the regulation].

1. Facilities receiving waste from outside of Virginia must notify the department and submit information indicating how each state regulates the following wastes:

a. Regulated Medical Waste. Provide information indicating the treatment requirements for waste regulated under the OSHA Bloodborne pathogen standard. Indicate which types of potentially infectious wastes are banned from municipal solid waste facilities and how blood, body fluids and other potentially contaminated items generated at hospitals and doctor's offices must be treated prior to disposal at a municipal solid waste landfill or incinerator.

b. Conditionally Exempt Small Quantity Generator Waste (CESQG). Provide information indicating the disposal requirements for waste regulated as CESQG waste. Indicate if CESQG wastes can be discarded by a generator in the municipal solid waste stream in the generating state or can be accepted at a municipal solid waste management facility.

c. PCB Waste. Provide information indicating the disposal requirements for PCB bulk product waste, PCB remediation waste, PCB contaminated electrical equipment and other PCB wastes.

If the department has reviewed the regulatory structure and made a determination related to the subject generating state pursuant to the provisions of subdivision 2 of this subsection, then this information need not be submitted with the notification.

2. On or before July 1 of each year, the Department will review the regulatory requirements for the generating states identified in the Solid Waste Information and Assessment Program and publish a listing of those states with less stringent regulatory standards with reference to the wastes listed in subdivision 1 of this subsection.

3. Based on the ability of the department or the facility to adequately inspect the wastes received, any requirement for increased monitoring shall include a condition indicating that the department reserves the right to impose a limit on the number and volume of the loads received from states with less stringent regulatory schemes .

9 VAC 20-80-115. Solid Waste Information and Assessment Program.

A. The owners or operators of all permitted solid waste management facilities that treat, store, or dispose of solid waste shall report by March 31 of each year the amount of solid waste, by weight or volume, received and managed by the facility during the preceding calendar year. The report shall identify solid waste by the following categories: (i) municipal solid waste; (ii) construction and demolition debris; (iii) industrial waste; (iv) regulated medical waste; (v) vegetative and yard waste; (vi) incinerator ash; (vii) sludge other than sludge that is land applied in accordance with § 32.1-164.5; (viii) tires; (ix) white goods; (x) friable asbestos; (xi) petroleum contaminated soil; and (xii) other special waste. For each such category the report shall include an estimate of the amount that was generated outside of the Commonwealth and the state or local jurisdictions where such waste originated. The report shall also estimate the amount of solid waste managed or disposed of by each of the following methods: (a) recycling; (b) composting; (c) landfilling; (d) incineration (e) sending off-site for further management; and (f) stored on site on December 31 of the reporting year.

B. At the option of the facility owner, the data collected may include an accounting of the facility's economic benefits to the locality where the facility is located including the value of disposal and recycling facilities provided to the locality at no cost or reduced cost, direct employment associated with the facility, and other economic benefits resulting from the facility during the preceding calendar year.

C. No facility shall be required pursuant to this section to provide information that is a trade secret as defined in § 59.1-336 of the Code of Virginia.

D. The reporting form to be used to fulfill the reporting requirement of this part is DEQ Form 50-25 (Solid Waste Information and Assessment Program - Reporting Table) (, which is also available in the Regulations for the Development of Solid Waste Management Plans (9 VAC 20-130-10 et seq.).

E. This section shall not apply to captive waste management facilities including captive industrial landfills.

9 VAC 20-80-120. Relationship with other regulations promulgated by the Virginia Waste Management Board.

A. Virginia Hazardous Waste Management Regulations (9 VAC 20-60-10 et seq.).

1. Solid wastes that have been declared hazardous by the generator in accordance with ~~9 VAC 20-60-340 E~~ 9 VAC 20-60-262.11 or that are regulated as hazardous wastes by the Commonwealth or another state, and will be treated, stored, or disposed in Virginia shall be managed in accordance with the requirements of ~~9 VAC 20-60-10~~ 9 VAC 20-60-12 et seq. and not this chapter.

2. Wastes generated by generators who are conditionally exempt pursuant to ~~9 VAC 20-60-120~~ 9 VAC 20-60-261.5 of the Virginia Hazardous Waste Management Regulations may be managed in solid waste management facilities provided that:

a. (1) A specific approval is obtained from the director for acceptance of the material at a facility with an approved liner and leachate collection system; or

(2) It is included in the facility permit; and

b. Records are kept of the actual amount, type and source of these wastes.

NOTE: "Generators who are conditionally exempt pursuant to ~~9 VAC 20-60-120~~ 9 VAC 20-60-261.5 of the Virginia Hazardous Waste Management Regulations" in a calendar month are persons who generate less than 100 kilograms of hazardous waste in that month. For more detail see Virginia Hazardous Waste Management Regulations.

B. Regulated Medical Waste Management Regulations (9 VAC 20-120-10 et seq.). Solid wastes which are defined as regulated medical wastes by the Regulated Medical Waste Management Regulations shall be managed in accordance with those regulations. Regulated medical wastes, which are excluded or exempt by 9 VAC 20-120-10 et seq. shall be regulated by this chapter.

C. Vegetative Waste Management and Yard Waste Composting Regulations (9 VAC 20-101-10 et seq.). Solid wastes which are defined as vegetative or yard waste may be managed in accordance with the Vegetative Waste Management and Yard Waste Composting Regulations.

D. Regulation Governing Management of Coal Combustion By-Products (9 VAC 20-85-10 et seq.). Coal combustion by-products that are used, reused or reclaimed by applying them or placing them on land in a manner other than addressed in 9 VAC 20-80-150 or 9 VAC 20-80-160, may be managed in accordance with Regulation Governing Management of Coal Combustion By-Products.

E. Financial Assurance Regulations of Solid Waste Facilities (9 VAC 20-70-10 et seq.). This chapter specifies the requirements for financial assurance and allowable financial assurance mechanisms.

F. Solid Waste Management Facility Permit Application Fees (9 VAC 20-90-10 et seq.). All applicants for solid waste management facility permits are required to pay a fee in accordance with the schedule shown in this chapter.

G. Regulations for the Development of Solid Waste Management Plans (9 VAC 20-130-10 et seq.). This chapter provides procedures and standards for establishing the boundaries of planning regions, provides a schedule of objectives for development of plans and planning goals, establishes required contents of plans and provides reporting requirements for the Solid Waste Information Assessment Program.

PART III.

IDENTIFICATION OF SOLID WASTES.

9 VAC 20-80-140. Definition of solid waste.

A. A solid waste is any discarded material.

B. Materials are solid wastes if they are used, reused, or reclaimed, or accumulated, stored or treated before such use, reuse, or reclamation, when they are:

1. Regulated as hazardous wastes under the Virginia Hazardous Waste Management Regulations (~~9 VAC 20-60-10~~ 9 VAC 20-60-12 et seq.); or

2. Used in a manner constituting disposal by being:

a. Applied to or placed on the land; or

b. Used to produce products that are applied to or placed on the land or are otherwise contained in products that are applied to or placed on the land. In the latter case, the product so containing remains a solid waste; or

3. Burned to recover energy, used to produce fuel, or are contained in fuels. In this case, the fuel so containing remains a solid waste; or

4. Reclaimed; or

5. Accumulated speculatively (see “speculatively accumulated material” in 9 VAC 20-80-10).

C. The materials listed in Table 3-1-1, Appendix 3.1, of the Virginia Hazardous Waste Management Regulations (~~9 VAC 20-60-10~~9 VAC 20-60-12 et seq.) under Waste Numbers ~~FO20, FO21, FO22, FO23, FO26, FO28~~ F020, F021, F022, F023, F026, F028 as inherently waste-like are solid wastes.

D. Respondents in actions to enforce these regulations who raise a claim that a certain material is not a solid waste, or is conditionally exempt from regulation, shall demonstrate that there is a known market or disposition for the material, and that they meet the terms of the exclusion or exemption. In doing so, they shall provide appropriate documentation (such as contracts showing that a second person uses the material as an ingredient in a production process) to demonstrate that the material is not a waste, or is exempt from regulation. In addition, owners or operators of facilities claiming that they actually are recycling materials shall show that they have the necessary equipment to do so.

9 VAC 20-80-150. Exclusions.

The materials described in this section are not solid wastes for the purposes of this chapter.

A. Waste waters that are:

1. Domestic sewage;

2. Any mixture of domestic sewage and other wastes that pass through a sewer system to a treatment plant when the ~~department~~ State Water Control Board determines that regulations based upon the State Water Control Law, Chapter 3.1 (§ 62.1-44.2 et seq.) of Title 62.1 of the Code of Virginia, have been met; or

3. Industrial waste water discharges subject to regulation under the State Water Control Law.

B. Irrigation flow returns.

C. Source, special nuclear or nuclear by-product materials as defined by the Atomic Energy Act of 1954, 42 USC § 2011 et seq.

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

E. Materials that are:

1. a. Used or reused, or prepared for use or reuse, as an ingredient in an industrial process to make a product, or as effective substitutes for commercial products or natural resources provided the materials are not being reclaimed or accumulated speculatively; or

b. Returned to the original process from which they are generated;

2. Beneficially used as determined by the department.

a. The following materials~~ that were solid waste prior to their use, reuse, or reclamation are determined by the department to be exempt from this chapter because such use, reuse or reclamation is considered to be beneficial~~, and uses listed in this part are exempt from this chapter as long as they are managed so they do not create an open dump, hazard, or public nuisance. These materials and the designated use are considered a beneficial use of waste materials:

(1) Unadulterated wood, wood chips, or bark from land clearing, logging operations, utility line clearing and maintenance operations, pulp and paper production, and wood products manufacturing, when these materials are placed in commerce for service as mulch, landscaping, animal bedding, erosion control, habitat mitigation, wetlands restoration, or bulking agent at a compost facility operated in compliance with 9 VAC 20-80-330;

(2) Unadulterated wood combustion residues when used as a soil amendment or fertilizer, provided the application rate of the wood ash is limited to the nutrient need of the crop grown on the land on which the wood combustion residues will be applied and provided that such application meets the requirements of the Virginia Department of Agriculture and Consumer Services (2 VAC 5-400-10 et seq. and 2 VAC 5-410-10 et seq.);

(3) Compost that satisfies the applicable requirements of the Virginia Department of Agriculture and Consumer Services (2 VAC 5-400-10 et seq. and 2 VAC 5-410-10 et seq.);

(4) Nonhazardous, contaminated soil which has been excavated as part of a construction project and which is used as backfill for the same excavation or excavations containing similar contaminants at the same site, at concentrations at the same level or higher. Excess materials from these projects are subject to the requirements of this chapter;

(5) Nonhazardous petroleum contaminated soil which has been treated to the satisfaction of the department in accordance with 9 VAC 20-80-700;

(6) Nonhazardous petroleum contaminated soil when incorporated into asphalt pavement products;

(7) Solid wastes which are approved in advance of the placement, in writing, by the department or which are specifically mentioned in the facility permit for use as daily cover material or other protective materials for landfill liner or final cover system components;

(8) Coal combustion by-products when used as a material in the manufacturing of another product (e.g., concrete, concrete products, lightweight aggregate, roofing materials, plastics, paint, flowable fill) or as a substitute for a product or material resource (e.g., blasting grit, roofing granules, filter cloth precoat for sludge dewatering, pipe bedding);

(9) Waste tire chips when used as a subbase fill for road base materials or asphalt pavements when approved by the Virginia Department of Transportation or by a local governing body;

(10) Waste ~~tire chips~~ tires used in the production of commercial products such as mats, pavement sealers, playground surfaces, brake pads, blasting mats, and other rubberized commercial products;

(11) Waste tire chips when used as backfill in landfill gas or leachate collection pipes, recirculation lines, and drainage material in landfill liner and cover systems, and gas interception or remediation applications;

(12) Waste tires, tire chips or tire shred when burned for energy recovery or pyrolyzed to produce fuel;

(13) "Waste derived fuel product," as defined in 9 VAC 20-80-10, derived from non-hazardous solid waste; and

(14) Recognizable, uncontaminated concrete and concrete products, asphalt pavement, brick, glass, soil and rock placed in commerce for service as a substitute for conventional aggregate.

b. In addition to items specified in subdivision 2 a of this subsection, the department may consider other ~~use, reuse or reclamation~~ waste materials and uses to be beneficial. The generator or proposed user of such materials may request that the department make a case-specific determination that the solid waste may be beneficially used in a manufacturing process to make a product or as an effective substitute for a commercial product. In all such cases, the materials will be managed so they do not create an open dump, hazard, or public nuisance.

(1) The requestor shall provide the following information:

(a) A description of the solid waste under review and its proposed use;

(b) Chemical and physical characteristics of the solid waste under review and of each type of proposed product;

(c) A demonstration that there is a known or reasonably probable market for the intended use of the solid waste under review and of all proposed products by providing one or more of the following:

(i) A description of how the proposed product will be used;

(ii) A demonstration that the proposed product complies with industry standards and specifications for that product if any; or

(iii) Other documentation that a market for the proposed product or use exists; and

(d) A demonstration that the management of the solid waste under review will not adversely affect human health and safety, the environment, and natural resources by providing:

(i) A solid waste control plan that describes the following:

(A) The source of the solid waste under review;

(B) Procedures for periodic testing of the solid waste under review and the proposed product to ensure that the proposed product's composition has not changed significantly;

(C) The disposition of any solid waste which may result from the manufacture of the product into which the solid waste under review is intended to be incorporated;

(D) A description of the type of storage (e.g., container, tank or pile) and the maximum anticipated inventory of the solid waste under review (not to exceed 90 days) before being used;

(E) Procedures for run-on and run-off control of the storage areas for the solid waste under review; and

(F) A program and implementation schedule of best management practices designed to minimize uncontrolled dispersion of the solid waste under review before and during all aspects of its storage as inventory and/or during beneficial use; and

(ii) A contingency plan that contains the following information:

(A) A description of arrangements between the applicant and local police departments, fire departments, hospitals, and emergency response teams to coordinate emergency services and familiarize them with the layout of the facility, properties of the solid waste handled and associated hazards, as appropriate;

(B) A list of names, addresses and telephone numbers of all individuals qualified to act as an emergency coordinator for the facility;

(C) A list of all relevant emergency equipment and the location of each item; and

(D) An evacuation plan for facility personnel.

(2) Upon receipt of complete information required under subdivision 2 b (1) of this subsection, the department will determine in writing within 90 days, on a case-by-case basis, whether the proposal constitutes a beneficial use based on a showing that all of the following criteria have been met:

(a) The proposed use of the material constitutes a reuse rather than disposal;

(b) For a material which is proposed for incorporation into a manufacturing process, the material is not required to be decontaminated or otherwise specially handled or processed before such incorporation, in order to minimize loss of material or to provide adequate protection, as needed, of public health, safety or welfare, the environment or natural resources; and

(c) Other criteria as the department shall determine in its discretion to be appropriate. Conversely, the department may determine that owing to the nature of the use, reuse, or reclamation process, some of the informational materials required under subdivision 2 b (1) of this subsection may not be required to make the determination.

(3) The department will either approve the request, disapprove it, or allow the proposed use of the solid waste under review subject to such conditions as the department may impose. When granting a beneficial use determination, the department shall determine, on a case-by-case basis, the precise point at which the solid waste under review ceases to be solid waste. Unless otherwise determined for the particular solid waste under review, that point occurs when it is used in a manufacturing process to make a product or used as an effective substitute for a commercial product or a fuel. As part of its request, the generator or the proposed user may request that such point occur elsewhere. In such a request, the proponent shall include a demonstration that there is little potential for improper disposal of the material or little potential for the handling, transportation, or storage of the solid waste under review to have an adverse impact upon the public health, safety or welfare, the environment or natural resources.

(4) The department may revoke any determination made if it finds that one or more of the items of information submitted serving as the basis for the department's determination was incorrect or is no longer valid, the department finds that there has been a violation of any condition that the department attached to such determination, or that the use, reuse or reclamation process has become a public nuisance.

c. Beneficial use determinations granted by the department before May 23, 2001, shall remain in effect, subject to all conditions contained therein, unless specifically addressed by subsequent department action.

F. Materials generated by any of the following, which are returned to the soil as fertilizers:

1. The growing and harvesting of agricultural crops.

2. The raising and husbanding of animals, including animal manures and used animal bedding;

G. Mining overburden returned to the mine site.

H. Scrap metal stored or being reclaimed for use, reuse or further reclamation.

I. Used, reused, or reclaimed commercial chemical products if they are applied to the land in their ordinary manner of use or if they are fuels.

J. Products produced for the general public's use that are used in the manner that constitutes disposal if they are applied to the land in their ordinary manner of use and that contain used, reused or reclaimed materials.

K. Wood wastes burned for energy recovery.

9 VAC 20-80-160. Conditional exemptions.

A. The following solid wastes are exempt from this chapter provided that they are managed in accordance with the requirements promulgated by other applicable state agencies:

1. Drilling fluids, produced waters, and other wastes associated with the exploration, development or production of crude oil, natural gas or geothermal energy;

2. Solid waste from the extraction, beneficiation and processing of ores and minerals, including coal;

3. Coal combustion by-products used for mine reclamation, mine subsidence, or mine refuse disposal on a mine site permitted by the Virginia Department of Mines, Minerals and Energy when used in accordance with the standards developed by the Department of Environmental Quality;

4. Waste or by-product derived from an industrial process that meets the definition of fertilizer, soil amendment, soil conditioner or horticultural growing medium as defined in § 3.1-106.2 of the Code of Virginia, or whose intended purpose is to neutralize soil acidity (see § 3.1-126.2:1 of the Code of Virginia), and that is regulated under the authority of the Virginia Department of Agriculture and Consumer Services;

5. Coal combustion bottom ash or boiler slag used as a traction control material or road surface material if the use is consistent with Virginia Department of Transportation practices;

6. Waste tires generated by and stored at salvage yards licensed by the Department of Motor Vehicles provided that they do not pose a hazard or a nuisance; and

~~Note: Waste tires managed at the licensed salvage yards are not subject to the storage limitations.~~

7. Chipped waste tires used as the drainage material in construction of septage drainfields regulated under the authority of the Virginia Department of Health.

B. Coal combustion by-products are exempt from this chapter provided they are used in one or more of the following applications or when handled, processed, transported, or stockpiled for such use:

1. Used as a base, sub-base or fill material under a paved road, the footprint of a structure, a paved parking lot, sidewalk, walkway or similar structure, or in the embankment of a road. In the case of roadway embankments, materials will be placed in accordance with VDOT specifications, and exposed slopes not directly under the surface of the pavement must have a minimum of 18” of soil cover over the coal combustion by-products, the top 6” of which must be capable of sustaining the growth of indigenous plant species or plant species adapted to the area;

2. Processed with a cementitious binder to produce a stabilized structural fill product which is spread and compacted with proper equipment for the construction of a project with a specified end use;

3. Used for the extraction or recovery of materials and compounds contained within the coal combustion by-products.

NOTE 1: Residuals from the processing operations remain solid wastes.

NOTE 2: The use of coal combustion by-products outlined in this regulation has been evaluated only with regard to the protection of human health and the environment. A qualified professional engineer should evaluate any structural application of coal ash.

C. The following solid wastes are exempt from this chapter provided that they are reclaimed or temporarily stored incidentally to reclamation, are not accumulated speculatively, and are managed without creating an open dump, hazard or a public nuisance:

1. Paper and paper products;

2. Unadulterated wood waste which is to undergo size reduction in order to produce mulch;

3. Cloth;

4. Glass;

5. Plastics;

6. Waste tire chips; and

7. Mixtures of above materials only. Such mixtures may include scrap metals ~~exempt under~~ excluded from regulation in accordance with the provisions of 9 VAC 20-80-150 H.

PART IV.

Management of Open Dumps and Unpermitted Facilities.

9 VAC 20-80-170. Purpose and scope.

A. This part sets forth the criteria and standards that will be used to:

1. Determine whether a site on which solid waste has been placed, discharged, deposited, injected, dumped, or spilled creates a substantial present or potential hazard to human health or the environment including the pollution of air, land, surface water or ground water; and

2. Prescribe the requirements for cleanup and corrective action for remediation of releases, as defined in Part I (9 VAC 20-80-10 et seq.) of this chapter, that may occur as the result of improper management of solid wastes.

B. The requirements in this part apply to all sites and practices used in management of solid waste with the following exceptions:

1. The requirements do not apply to sites that solely manage wastes that are excluded under 9 VAC 20-80-150.

2. The requirements do not apply to the land application of domestic sewage, septage, or waste treatment sludges from publicly owned waste treatment works regulated by the State Water Control Board and the Department of Health.

3. The criteria requirements do not apply to hazardous waste management facilities regulated under Virginia Hazardous Waste Management Regulations (9 VAC 20-60-10 et seq.).

C. The requirements of this part do not apply to the persons ~~allowed voluntarily to remediate releases of hazardous substances, hazardous wastes, solid wastes or petroleum where remediation is not clearly mandated by the United States Environmental Protection Agency, the department or a court pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act ("Superfund," 42 USC § 9601 et seq.), the Resource Conservation and Recovery Act (42 USC § 6901 et seq.), the Virginia Waste Management Act (§ 10.1-1400 et seq.), the State Water Control Law (§ 62.1-44.2 et seq.), or other applicable statutory or common law or where jurisdiction of those statutes has been waived except as may be allowed under the provisions of the Voluntary Remediation Program (9 VAC 20-160-30 E).~~actively enrolled in the Voluntary Remediation Program in (9 VAC 20-160-10 et seq.)

9 VAC 20-80-180. Open dump criteria.

A. Municipal solid waste landfill units failing to satisfy the federal Solid Waste Disposal Facility Criteria contained in 40 CFR Part 258 constitute open dumps, which are prohibited under § 4005 of the federal Resource Conservation and Recovery Act. For the purposes of this part, the municipal solid waste landfill unit (MSWLF) means a discrete area of land or an excavation that receives or has received after October 9, 1991 household waste, and that is not a land application

unit, surface impoundment, injection well, or waste pile, as those terms are defined in Part I (9 VAC 20-80-10 et seq.) of this chapter. A MSWLF unit also may receive other types of non-hazardous solid wastes, such as commercial solid waste, nonhazardous sludge, nonhazardous industrial solid waste, and hazardous waste from conditionally exempt small quantity generators as provided for in 9 VAC 20-60-261 B 5.

B. Any site, other than a municipal solid waste landfill as defined in subsection A of this section, that meets any of the following criteria shall be classified as an open dump:

1. Floodplains. Sites or practices in floodplains that restrict the flow of the base flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste, so as to pose a potential hazard to human life and wildlife or to cause a potential for contamination of land or water resources.

2. Endangered species.

a. Sites or practices that cause or contribute to the taking of any endangered or threatened species of plants, fish or wildlife.

b. The site or practice that results in the destruction or adverse modification of the critical habitat of endangered or threatened species as identified in 50 CFR Part 17.

c. As used in this section:

(1) “Endangered or threatened species” means any species listed as such pursuant to section 4 of the Endangered Species Act.

(2) “Destruction or adverse modification” means a direct or indirect alteration of critical habitat which appreciably diminishes the likelihood of the survival and recovery of threatened or endangered species using that habitat.

(3) “Taking” means harassing, harming, pursuing, hunting, wounding, killing, trapping, capturing, or collecting or attempting to engage in such conduct.

3. Surface water.

a. A site that causes a discharge of pollutants into state waters that is in violation of the requirements of the Virginia Pollutant Discharge Elimination System.

b. A site that causes a discharge of dredged material or fill material to state waters or to the waters of the United States that is in violation of the requirements under § 404 of the Clean Water Act as amended.

c. A site or practice that causes non-point source pollution of state waters that violates applicable legal requirements implementing a basin wide water quality management plan that has been developed and approved under § 303 e of the Clean Water Act.

d. A site or practice that violates Virginia Pollution Abatement Permit issued by the State Water Control Board.

4. Ground water.

a. A site or practice that contaminates an underground drinking water source beyond the solid waste boundary or beyond an alternative boundary specified.

b. For the purposes of this part, a party in violation with these provisions may demonstrate that compliance should be determined at an alternative boundary instead of the solid waste boundary. The director may establish an alternative boundary if he finds that such a change would not result in contamination of ground water which may be needed or used for human consumption. This finding shall be based on analysis and consideration of all the following relevant factors:

(1) The hydrological characteristics of the site and surrounding land, including any natural attenuation and dilution characteristics of the aquifer;

(2) The volume and physical and chemical composition of the leachate;

(3) The quantity, quality, and direction of flow of ground water underlying the site;

(4) The proximity and withdrawal rates of ground water users;

(5) The availability of alternative drinking water supplies;

(6) The existing quality of ground water, including other sources of contamination and their cumulative impacts on the ground water;

(7) Public health, safety, and welfare effects;

(8) Other factors as allowed by the director.

c. As used in this section, “contaminate” means to introduce a substance that would cause:

(1) The concentration of that substance in the ground water to exceed the maximum contaminant level as specified by the federal Safe Drinking Water Act (42 USC 300f et seq.), as amended; or

(2) An increase in the concentration of that substance in the ground water where the existing concentration of that substance exceeds the maximum contaminant level.

5. Application to land. Land application of solid wastes such as sewage sludge in violation of Virginia Sewerage Regulations or other regulations of the State Water Control Board.

6. Disease.

a. Vectors. A site where operation or practices exist that cause or contribute to the on-site population of disease vectors such that a potential threat to public health or environment is created.

b. Septage. Disposal of septage removed from residential septic tanks in sites not regulated by the Virginia Department of Health or the State Water Control Board.

7. Open burning.

a. The site or practice that engages in open burning of residential, commercial, institutional or industrial solid waste.

b. The following practices are conditionally exempt from this requirement:

(1) Infrequent burning of land clearing debris provided that the requirements of Article 40 (9 VAC 5-40-5600 et seq.) of Part II of 9 VAC 5 Chapter 40 have been met and any permits by applicable local authorities have been obtained;

(2) Burning of debris from emergency clean-up operations provided that emergency permits have been obtained from the department;

(3) Infrequent burning of agricultural wastes in the field or silvicultural wastes for forest management purposes as specified in 9 VAC 5-40-5631;

(4) Burning rubber tires, asphaltic materials, crankcase oil, impregnated wood or other rubber- or petroleum-based wastes when conducting bona fide fire fighting instruction at fire fighting training schools having permanent facilities;

(5) Burning for training and instruction of government and public fire fighters under supervision of the designated official and industrial in-house fire fighting personnel with clearance from the local fire fighting authority, provided the designated official in charge notifies and obtains approval of the regional director of the department prior to conducting the training exercise;

(6) Burning of leaves and tree, yard and garden trimmings on the site of generation, provided that in urban areas no scheduled public or private collection service for such trimmings is available at the adjacent street or public road (see also 9 VAC 5-40-5630);

(7) Burning for the destruction of classified military documents;

(8) Burning or other thermal treatment of ordnance, explosives, or other unstable materials provided appropriate permits have been obtained from the department pursuant to 9 VAC 20-60-10 et seq. or Part VII (9 VAC 20-80-480 et seq.) of this chapter; and

(9) Burning or other treatment of hazardous waste regulated under the Virginia Hazardous Waste Management Regulations.

(10) Burning household refuse by homeowners or tenants provided that no regularly scheduled public or private collection service for such refuse is available at the adjacent street or public road.

Note: State Air Pollution Control Board's Emission Standards for Open Burning (Rule 4-40) provide for certain exemptions from open burning prohibitions. As indicated in 9 VAC 4-40-5620 E and F, exemptions under air regulation do not relieve an individual from complying with other applicable laws and ordinances, including the Solid Waste Management Regulations.

8. Safety.

a. Explosive gases. The concentration of explosive gases generated by the site or practice exceeds:

(1) 25% of the lower explosive limit for the gases in structures (excluding gas control or recovery system components) or, in the absence of structures located on the site, in the nearest occupied structure in the vicinity of the site; and

(2) The lower explosive limit for the gases at the facility boundary.

b. Fires. A site or practice that poses a hazard to the safety of persons and property from fires.

c. Hazards to aircraft. A site or practice of disposing of putrescible waste that attracts birds and occurs within 10,000 feet of any airport runway used by turbojet aircraft or within 5,000 feet of any airport runway used by only piston-type aircraft and poses a bird hazard to aircraft.

d. Access. A site or practice that does not control public access or operates so as to expose the public to potential health and safety hazards at the site.

9 VAC 20-80-190. Open dumps.

A. Except as provided for in 9 VAC 20-80-170 B and 9 VAC20-80-180 A, sites or practices which violate criteria specified in 9 VAC 20-80-180, whether currently active or inactive, shall be classified as open dumps. Practices which violate the criteria shall be classified as open-dumping.

NOTE: Both permitted and unpermitted sites or facilities may be classified as open dumps.

B. The owner or operator of an active open dump shall immediately cease treatment, storage or disposal of any additional waste.

C. The owner or operator or both or other responsible party shall initiate removal, cleanup, or alternate remedial action in accordance with 9 VAC 20-80-210.

9 VAC 20-80-205. Initial Site Evaluation.

A. An initial site evaluation will be conducted in order to determine if further action is required under this part. The initial site evaluation will include any information that can be obtained from the owner, operator, or other responsible party as well as all documented observations by department personnel regarding the following:

1. The location of the site;

2. The amount, type and source of the waste at the site;

2. The permit status for the activities taking place at the site; and

3. A preliminary evaluation of the site with respect to the criteria outlined in 9 VAC 20-80-180.

B. Based on the information gathered under the provisions of subsection A of this section, the department will make a preliminary recommendation for remedial action as follows:

1. Remedial action is required under the provisions of 9 VAC 20-80-210;

2. Remedial action is not required and no further action is necessary at the site; or

3. The wastes can simply be removed from the site and disposed of at a permitted facility. The department may require submission of evidence of proper management of the removed waste and may require evidence, including confirmatory sampling, of the removal of solid waste and any hazardous constituents. A site inspection will be performed by the department.

C. The action conducted under this section may be performed pursuant to an administrative or judicial order or other appropriate mechanism as determined by the department .

9 VAC 20-80-210. Remedial action.

Pursuant to the recomendation made under the provisions of 9 VAC 20-80-205 B or C, remedial action shall be conducted pursuant to one or more, or a combination of, the provisions of this section.

A. Removal, cleanup, and proper management. ~~The~~ In accordance with the requirements set forthe in this section, the owner, operator, or other responsible party shall remove the solid waste and any hazardous constituents and manage them in accordance with any other applicable requirements. The director may require submission of evidence of proper management of the removed waste, and may require evidence of removal of solid waste and any hazardous constituents in accordance with a sampling and analysis plan approved by the department.

1. The following factors at a minimum shall be considered in determining the appropriateness of a removal pursuant to this section:

a. Actual or potential exposure to nearby human populations, animals, or the food chain from solid waste or hazardous constituents of solid waste;

b. Actual or potential contamination of drinking water supplies or sensitive ecosystems;

c. Solid waste or hazardous constituents of solid waste in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release;

d. Hazardous constituents of solid waste in soils largely at or near the surface, that may migrate;

e. Threat of fire or explosion;

f. Other situations or factors which may pose threats to public health or welfare or the environment; and

g. Costs of removal compared to the costs of closure in place or the costs of alternate remedial action.

~~2. In order for the owner/operator to satisfy the requirements of this subsection to provide evidence of removal of solid wastes, and any hazardous constituents, the following information can be provided:~~

~~a. The results of an engineering evaluation and a cost analysis of removal alternatives for the site.~~

2. In order to fully evaluate the appropriateness of and alternatives for a removal action, the department may require the owner or operator to provide any or all of the required information.

~~b.~~ a. Environmental samples ~~may~~ shall be collected, in accordance with a sampling and analysis plan that shall provide a process for obtaining ~~data of sufficient quality and quantity to satisfy data needs~~ quality data. Sampling and analysis plans shall be reviewed and approved by the department. The sampling and analysis plans shall consist of two parts:

(1) The field sampling plan, which describes the number, type, and location of samples and the type of analyses; and

(2) The quality assurance project plan, which describes policy, organization, and functional activities and the data quality objectives and measures necessary to achieve adequate data for use in planning and documenting the removal action.

b. An engineering evaluation and a cost analysis report of removal alternatives for the site including a recommended removal action. This report will identify the primary removal alternatives, the cost of each alternative and a brief evaluation of the relative merits of each alternative pursuant to the criteria set forth at 20-80-210(c)(5)(b) .

3. Upon receipt and review of any information required pursuant to subsection 2 above, the Department will review and approve, disapprove or require modifications to the plan, report and/or recommended removal action. Upon approval of a removal action by the Department, the owner, operator, or other responsible party shall implement the approved removal action and manage the wastes in accordance with any other applicable requirements. The department may require submission of evidence of proper management of the removed waste and may require evidence, including confirmatory sampling, of the removal of solid waste and any hazardous constituents.

~~3.~~ 4. If the removal will not fully address the threat posed by the release, closure under Part V (9 VAC 20-80-240 et seq.) of this chapter, or an alternate remedial action ~~may~~ will be considered. ~~An orderly~~ A work plan will be provided which outlines the transition from removal to closure in place or alternate remedial action ~~will be provided~~.

~~4.~~ 5. Removal shall meet applicable or relevant and appropriate requirements under federal or state environmental laws considering the exigencies of the situation.

~~5. The following removal actions are, as a general rule, appropriate in the types of situations shown; however, this list is not exhaustive and is not intended to prevent the responsible party or the director from taking any other actions deemed necessary by the director, and the list does not create a duty to take action at any particular time:~~

~~a. Excavation and removal of uncovered solid wastes or hazardous constituents of solid waste from waste piles, surface impoundments, or other units - where such actions will reduce the spread of, or direct contact with, the waste or waste constituents;~~

~~b. Excavation, or removal of contaminated soils from drainage or other areas - where such actions will reduce the spread of, or direct contact with, the contamination;~~

~~c. Removal of drums, barrels, tanks, or other bulk containers that contain or may contain solid wastes or hazardous constituents of solid wastes - where it will reduce the likelihood of spillage; leakage; exposure to humans, animals, or food chain; or fire or explosion;~~

B. Closure in place. If the owner, operator, or other party responsible for an open dump or unpermitted facility demonstrates that the facility will not pose a threat to human health or the environment when closed in place, the facility may be closed with the waste left in place under an administrative or judicial order, in accordance with the provisions of Part V. While pursuing a closure under the provisions of Part V, an owner, operator, or other responsible party shall undertake any removal or other interim measures (subdivision C 8 of this section) necessary to abate any immediate threat to human health or the environment.

1. The demonstration shall contain, as a minimum, the following information:

a. Type of waste.

(1) The amount, type, source, and generating process of all of the waste managed at the unpermitted facility.

(2) Information required under Part VIII (9 VAC 20-80-630 et seq.) of this chapter for any waste that would require a letter of clarification from the director.

(3) A statement that the waste contains no hazardous waste under the Virginia Hazardous Waste Management Regulations.

(4) The director may require the submission of verified statements from owner, operator, other responsible party, generators, or other sources of the waste to support the above information.

b. Siting. The owner, operator, or other party responsible for the unpermitted facility shall submit documentation from a registered professional engineer that closure of the facility in place will comply with the applicable siting requirements of Part V of this chapter, as follows:

(1) Airport safety;

(2) Floodplains;

(3) Unstable areas;

(4) Wetlands;

(5) Fault areas;

(6) Seismic impact zones;

(7) Setbacks from surface waters or rivers, facility boundaries, wells, springs or other ground water sources of drinking water, public road right-of-ways, residences, schools, hospitals, nursing homes, or recreational park areas;

(8) Ability to conduct ground water monitoring; and

(9) Engineering controls to address site specific characteristics that might prevent approval or require limitations on the site.

c. Certification by ~~the~~ a registered professional engineer or qualified ground water scientist that in his professional judgment the facility can be closed with the waste left in place without posing a threat to human health or the environment. If the director makes a determination under this subsection, he will enter into an order to that effect.

2. Any such order issued pursuant to this subsection will require the owner, operator, or other responsible party:

a. To submit a closure and a post-closure plan for the approval of the director in accordance with Part V of these regulations;

b. To perform the closure and post-closure care in accordance with the approved plan;

c. To perform any corrective action required under Part V of this chapter should the results of the ground water monitoring performed during the post-closure care period warrant such an action;

d. To maintain financial assurance whenever required by the Financial Assurance Regulations for Solid Waste Facilities (9 VAC 20-70-10 et seq.); and

e. To perform any other actions deemed necessary to protect human health and the environment.

C. Alternate remedial action. Unless the procedures under subsection A or B of this section have been implemented, the owner, operator, or other responsible party for an open dump or unpermitted facility will submit a letter of intent to pursue an alternate remedial action and an evaluation in accordance with the provisions of subdivision 1 of this subsection. If waste or hazardous constituents are proposed to be left in place, a demonstration in accordance with subdivision B 1 of this section shall be submitted. In order to pursue an alternate remedial action, the owner, operator, or other responsible party will also demonstrate to the director that the facility will not pose a threat to human health or the environment upon completion of an alternate remedial action in compliance with this part. While pursuing an alternate

remedial action, an owner, operator, or other responsible party shall undertake any removal or other interim measures (subdivision 8 of this subsection) necessary to abate any immediate threat to human health or the environment.

1. Site evaluation. The owner, operator or other responsible party will perform a site evaluation to determine the scope of releases or potential releases.

a. The site evaluation may include collection or review of data such as site management practices, information from waste generators, photographs, analysis of historical photographs, literature searches, and personal interviews conducted, as appropriate. A site inspection may be performed if more information is needed. Such inspection may include a perimeter (i.e., off-site) or on-site inspection, taking into consideration whether such inspection can be performed safely.

b. The evaluation may include, but is not limited to:

(1) Identification of the source and nature of the release or threat of release;

(2) Evaluation by other sources, for example, state public health agencies, of the threat to human health;

(3) Evaluation of the magnitude of the threat to human health and the environment;

(4) Evaluation of factors necessary to make the determination of whether a removal is necessary;

(5) Evaluation of the demonstration required under subdivision B 1 of this section;

(6) Identification of the owners and operators and a determination of whether the owner or operator, another governmental agency or a third party is undertaking proper response; and

(7) Identification of interim measures necessary to stabilize the site.

2. The director will evaluate the demonstration and the site evaluation based on the information submitted and determine:

a. If additional information is required; or

b. That no action is required; or

c. That the facility may close under the provisions of subsection A or B of this section only; or

d. That an alternate remedial action will be considered, and the owner or operator may proceed with the remedial investigation and the corrective measures survey in accordance with subdivisions 3 and 4 of this subsection.

e. If a combination of Remedial Action under this section may be pursued; or

f. If an owner, operator, or other responsible party is not making timely progress toward alternate closure, the director may require closure under the provisions of this subsection or subsection A of this section.

3. Remedial investigations.

a. Remedial investigations. If it is found that solid waste (including hazardous constituents) have been, are likely to have been, or based on site-specific circumstances, are likely to be released into the environment from a solid waste management unit at the site, the owner, operator, or other responsible party will investigate and characterize solid waste management units and releases from solid waste management units at the site.

b. Scope of remedial investigations.

(1) Investigations required under this subdivision shall characterize the nature, extent, direction, rate, movement and concentration of releases, as required by the director. In addition, such investigations may include, but are not limited to, the following:

(a) Characterizations of the environmental setting at the facility, including:

(i) Hydrogeological conditions;

(ii) Climatological conditions;

(iii) Soil characteristics;

(iv) Surface water and sediment quality and other characteristics; or

(v) Air quality and meteorological conditions.

(b) Characterization of solid waste management units from which releases have been or may be occurring, including unit and waste characteristics.

(c) Descriptions of humans and environmental systems which are, may have been, or, based on site-specific circumstances, may be exposed to release.

(d) Information that will assist in assessing risks to human health and the environment from releases from solid waste management units. Such information shall be accompanied by:

(i) Proposed action levels as defined in 9 VAC 20-80-220 for relevant hazardous constituents; and

(ii) Proposed points of applicability for the action levels.

(e) Extrapolations of future movement, degradation and fate of contaminants.

(f) Laboratory, bench-scale or pilot-scale tests or studies to determine the feasibility or effectiveness of treatment technologies or other technologies that may be appropriate in implementing remedies at the facility.

(g) Statistical analyses to aid in the interpretation of data required under this subdivision, in accordance with statistical methods contained in ~~Appendix 5.4~~ 9 VAC 20-80-300 D or otherwise approved by the director.

(2) Samples of ground water, surface water, soils, or air which are collected as part of remedial investigations required under this subdivision shall be analyzed for those constituents and parameters determined to be

necessary by the director to accurately and adequately characterize the presence of hazardous waste (including hazardous constituents) in the samples.

c. Plans for remedial investigations.

Such plans may include, but are not limited to, the following:

(a) Overall approach, including objectives, schedules, and qualifications of personnel conducting investigations.

(b) Technical and analytical approach and methods of investigations.

(c) Quality assurance procedures, including:

(i) Data collection strategy;

(ii) Sampling, chain of custody procedures; and

(iii) Methods of sample analysis.

(d) Data management procedures, including formats for documenting analytical results and tracking sample custody, and other results of investigations.

d. Reports of remedial investigations.

(1) The director may require periodic reports to be submitted by the owner or operator during remedial investigations required under this subdivision, and may, based on information from the investigations, or other information, require new or modified investigations.

(2) Upon conclusion of the remedial investigations, the owner or operator shall submit to the ~~director~~ department:

~~(a)~~ A final report including an executive summary, describing the procedures, methods, and results of the remedial investigations; and

~~(b) A summary of the report.~~

(3) If, upon receipt of the final report and summary, the final report and summary do not provide a full and accurate summary and description of the remedial investigations, the director may require the owner or operator to submit a revised report.

(4) All ~~raw~~ data, such as laboratory reports, drilling logs, QA/QC documentation and other supporting information generated from the investigations required under this subdivision shall be maintained at the site (or other location approved by the director) for the period of three years after completion of corrective action.

4. Corrective measure study.

a. Requirements to perform corrective measure study.

(1) If concentrations of hazardous constituents in ground water in an aquifer, surface water, soils, or air exceed an action level (as defined under 9 VAC 20-80-220), and there is reason to believe that such hazardous constituents have been released from a solid waste management unit at the site, the owner or operator will perform a corrective measure study, according to the requirements of this subdivision, except as provided otherwise under subdivision 4 a (3) of this subsection.

(2) If a constituent present in a concentration below an action level (as defined under 9 VAC 20-80-220) may pose a threat to human health or the environment, given site-specific exposure conditions, and there is reason to believe that the constituent has been released from a solid waste management unit at the site, a corrective measure study may be required according to the requirements of subdivision 4 of this subsection.

(3) If an action level has been exceeded (as provided under subdivision 4 a (1) of this subsection), but the release may nevertheless not pose a threat to human health and the environment, the owner or operator may apply for a determination of no further action.

b. Scope of corrective measure studies.

(1) Corrective measure studies required under subdivision 4 a of this subsection a may include, but are not limited to, the following:

(a) Evaluation of performance, reliability, ease of implementation, and potential impacts of the remedy, including safety impacts, cross media impacts, and control of exposure to any residual contamination.

(b) Assessment of the effectiveness of potential remedies in achieving adequate control of sources and cleanup of the solid waste (including hazardous constituents) released from solid waste management units.

(c) Assessment of the time required to begin and complete the remedy.

(d) Estimation of the costs of remedy implementation.

(e) Assessment of institutional requirements, such as state or local permit requirements, or other environmental or public health requirements which may substantially affect implementation of the remedy.

(2) The owner, operator, or other responsible party must evaluate as part of the corrective measure study one or more specific potential remedies. These remedies may include a specific technology or combination of technologies that achieves or may achieve the standards for remedies specified in subdivision 4 a of this subsection given appropriate consideration of the factors specified in subdivision 5 b of this subsection.

c. Plans for corrective measure studies.

(1) The owner, operator, or other responsible party will develop and submit a plan for conducting a corrective measure study required under subdivision 4 a of this subsection. The plan shall be subject to review and approval or modification by the director. Such plans may include, but are not limited to, the following:

(a) Description of the general approach to investigating and evaluating potential remedies;

(b) Definition of the overall objectives of the study;

(c) Description of the specific remedy which will be studied;

(d) Plans for evaluating remedies to ensure compliance with the standards for remedies specified in subdivision 5 a of this subsection;

(e) Schedules for conducting the study; and

(f) Proposed format for information presentation.

(2) Upon approval or modification of the corrective measure study plan, the owner or operator shall conduct the studies and investigations in accordance with the plan.

d. Reports of corrective measure studies.

(1) The director may require periodic reports during the conduct of the corrective measure study, and may, based on the information from these reports or other information, require the owner or operator to modify the corrective measure study. Such modifications will, if necessary, be specified by modifying the schedule ~~of compliance specified in the order~~ for remedy required in subdivision C 6 of this subsection.

(2) Upon completion of the corrective measure study, the owner or operator shall submit a report summarizing the results of the study. This report shall include a detailed description of the remedies assessed pursuant to subdivision 4 b or d (1) of this subsection. The report shall describe how any proposed remedy meets the standards for remedies specified in subdivision 5 a of this subsection.

(3) Upon review of the corrective measure study report, the director may require the owner or operator to evaluate further, and report upon, one or more additional remedies, or develop particular elements of one or more proposed remedies.

5. Selection of remedy. Based on the results of the corrective measure study, and any further evaluations conducted under subdivision 4 d (3) of this subsection, the director shall, except as otherwise provided under subdivision 5 f of this subsection, approve a remedy that, at a minimum, meets the standards listed in subdivision 5 a of this subsection.

a. Standards for remedies. Remedies must:

(1) Be protective of human health and the environment;

(2) Attain media cleanup standards pursuant to subdivision 5 d of this subsection;

(3) Control the source of releases so as to reduce or eliminate, to the extent practicable, further releases of solid wastes (including hazardous constituents) that may pose a threat to human health and the environment; and

(4) Comply with standards for management of wastes as specified in subdivision 9 of this subsection.

b. Remedy selection factors. In selecting a remedy which meets the standards of subdivision 5 a of this subsection, the director will consider the following evaluation factors as appropriate:

(1) Long-term reliability and effectiveness. Any potential remedy may be assessed for the long-term reliability and effectiveness it affords, along with the degree of certainty that the remedy will prove successful. Factors that shall be considered in this evaluation include:

(a) Magnitude of residual risks in terms of amounts and concentrations of waste remaining following implementation of a remedy, considering the persistence, toxicity, mobility and propensity to bioaccumulate of such solid wastes (including hazardous constituents);

(b) The type and degree of long-term management required, including monitoring and operation and maintenance;

(c) Potential for exposure of humans and environmental receptors to remaining wastes;

(d) Long-term reliability of the engineering and institutional controls, including uncertainties associated with land disposal of untreated wastes and residuals; and

(e) Potential need for replacement of the remedy.

(2) Reduction of toxicity, mobility or volume. A potential remedy may be assessed as to the degree to which it employs treatment that reduces toxicity, mobility or volume of solid wastes (including hazardous constituents). Factors that shall be considered in such assessments include:

(a) The treatment processes the remedy employs and materials it would treat;

(b) The amount of solid wastes (including hazardous constituents) that would be destroyed or treated;

(c) The degree to which the treatment is irreversible;

(d) The residuals that will remain following treatment, considering the persistence, toxicity, mobility, and propensity to bioaccumulate of such solid wastes (including hazardous constituents).

(3) The short-term effectiveness of a potential remedy may be assessed considering the following:

(a) Magnitude of reduction of existing risks;

(b) Short-term risks that might be posed to the community, workers, or the environment during implementation of such a remedy, including potential threats to human health and the environment associated with excavation, transportation, and redisposal or containment;

(c) Time until full protection is achieved.

(4) Implementability. The ease or difficulty of implementing a potential remedy may be assessed by considering the following types of factors:

(a) Degree of difficulty associated with constructing the technology;

(b) Expected operational reliability of the technologies;

(c) Need to coordinate with and obtain necessary approvals and permits from other agencies;

(d) Availability of necessary equipment and specialists;

(e) Available capacity and location of needed treatment, storage and disposal services.

(5) Cost. The types of costs that may be assessed include the following:

(a) Capital costs;

(b) Operation and maintenance costs;

(c) Net present value of capital and operation and maintenance costs;

(d) Potential future remedial action costs.

c. Schedule for remedy. The director will specify as part of the selected remedy a schedule for initiating and completing remedial activities. The director will consider the following factors in determining the schedule of remedial activities:

(1) Extent and nature of contamination;

(2) Practical capabilities of remedial technologies in achieving compliance with media cleanup standards, and other objectives of the remedy;

(3) Availability of treatment or disposal capacity for wastes managed during implementation of the remedy;

(4) Desirability of utilizing technologies which are not currently available, but which may offer significant advantages over already available technologies in terms of effectiveness, reliability, safety, or ability to achieve remedial objectives;

(5) Potential risks to human health and the environment from exposure to contamination prior to completion of the remedy;

(6) Other relevant factors.

d. Media cleanup standards. The director will specify in the selected remedy requirements for remediation of contaminated media in accordance with the provisions of subdivision 4 a of this subsection.

e. Reserved.

f. Stabilizing remedies.

(1) If the criteria of subdivision 5 f (2) of this subsection are met, the director may select a stabilizing remedy that protects human health and the environment under plausible exposure conditions during the term of the order required in subsection C 6 of this section.

(2) A stabilizing remedy must:

(a) Protect human health and the environment; and

(b) Achieve all media cleanup standards or levels as specified pursuant to 9 VAC 20-80-230 beyond the site boundary as soon as practicable; and

(c) Prevent further significant environmental degradation by implementing, as soon as practicable:

(i) Treatment or other necessary engineering controls to control any source of releases; and

(ii) Engineered measures as necessary to prevent further significant migration of releases within the site boundary.

(d) Institute effective institutional or other controls to prevent any significant exposure to hazardous wastes at the site; and

(e) Continue the monitoring of releases so as to determine whether further significant environmental degradation occurs; and

(f) Comply with standards for management of wastes as specified in subdivision 9 of this subsection.

(3) If at any time during the term of the order required under subsection C 6 of this section, any condition of subdivision 5 f (2) of this subsection is violated, the director will modify the order to:

(a) Require the owner or operator to perform additional studies and actions, or implement additional controls to achieve compliance with the requirements of subdivision 5 f (2) of this subsection; or

(b) Require additional studies, actions, or controls as necessary to implement a remedy which meets the standards of subdivision 5 a of this subsection.

(4) The order required under subsection C6 of this section shall not be terminated until a remedy which meets the standards of subdivision 5 a of this subsection has been implemented and certified complete according to subdivision 6 e of this subsection.

6. Remedy. The remedy selected shall be implemented under an administrative or judicial order and will include the plans and other documents specified in this subsection. Periodic progress reports are required which allow the director to review the progress of the remedy and determine when the remedy has been satisfactorily completed.

a. ~~The remedy selected shall be implemented pursuant to an administrative or judicial order which may include the following elements:~~Requirements of the order.

(1) The order shall include, at a minimum, the following:

(a) Description of the technical features ~~of the remedy~~ that are necessary for achieving the standards for remedies specified in subdivisions 5 a or f, or both, of this subsection.

(b) All media cleanup standards established pursuant to 9 VAC 20-80-230 A.

(c) Requirements for achieving compliance with media cleanup standards, pursuant to 9 VAC 20-80-230 B.

(d) Requirements for complying with the standards for management of wastes, pursuant to subdivision 9 of this subsection.

(e) Requirements for removal, decontamination, closure, or postclosure of units, equipment, devices or structures that will be used to implement the remedy.

(f) A schedule for initiating and completing the major technical features and milestones of the remedy (compliance schedule.)

(g) Requirements for submission or reports and other information.

(2) A remedy specified in an order may be separated into phases. A remedy phase may consist of any set of actions performed over time, or any actions that are concurrent but located at different areas, provided that the actions are consistent with the final remedy.

b. Remedy design.

(1) The order may require the owner, operator or other responsible party to prepare detailed construction plans and specifications to implement the approved remedy at the site, unless such plans and specifications have already been provided. Such plans shall be subject to review and approval or modification by the director. Upon approval by the director, the plan shall be incorporated expressly or by reference into the order. The plans and specifications shall include, but are not limited to, the following:

(a) Designs and specifications for units in which solid wastes will be managed, as specified in the approved remedy.

(b) Implementation and long-term maintenance plans.

(c) Project schedule.

(d) Construction quality assurance program.

(2) Upon approval of the plans and specifications for the remedy, the owner or operator shall implement the remedy in accordance with the plans and specifications;

c. Progress reports.

(1) The owner or operator may be required by the director to provide progress reports during the design, construction, operation, and maintenance of the remedy. Frequency ~~and format~~ of the progress reports will be ~~determined by the director and~~ specified in the order. Such reports may include, but are not limited to:

(a) Summaries of progress of remedy implementation, including results of monitoring and sampling activities, progress in meeting media cleanup standards, and description of other remediation activities.

(b) Problems encountered during the reporting period, and actions taken to resolve the problems.

(c) Changes in personnel conducting or managing the remedial effort.

(d) Project work for next reporting period.

(e) Copies of laboratory reports with accompanying QA/QC data and field sampling reports.

(2) All ~~raw~~ data, such as laboratory reports, drilling logs, QA/QC documentation and other supporting information generated from the remedial activities shall be maintained at the site (or other location approved by the director) for a period of three years after the termination of the order.

d. Review of remedy implementation. ~~The director will periodically~~ Periodic review will be conducted to determine the progress of the remedy. Based on such review, ~~the director may modify~~ the order may be modified to require additional remedial measures to ensure prompt completion, safety, effectiveness, protectiveness, or reliability of the remedy.

e. Completion of remedies.

(1) Remedies specified pursuant to subdivision 6 a of this subsection shall be considered complete when the director determines that:

(a) Compliance with all media cleanup standards (or alternate levels) as specified in the order have been achieved, according to the requirements of 9 VAC 20-80-230 B;

(b) All actions required to control the source of contamination have been satisfied; and

(c) Procedures specified for removal, decontamination, closure, or post-closure care of units, equipment, devices, or structures required to implement the remedy have been complied with.

(2) Upon completion of the remedy, the owner or operator shall submit ~~to the director, by registered mail, a request for termination of the order. The request shall include~~ a certification that the remedy has been completed

in accordance with the requirements of subdivision 6 e (1) of this subsection, and that all other terms and conditions specified in the order pursuant to this subsection have been satisfied. The certification shall be signed by the owner or operator and by a registered professional engineer.

(3) When, upon receipt of the certification and any other relevant information, the director determines that the corrective measure remedy has been completed in accordance with the terms and conditions of the order and the requirements for remedy completion under subdivision 6 e (1) of this subsection, the director will terminate the order.

(4) If a remedy includes one or more identified phases, the director may require separate certification that the remedy phase has been completed as specified in the order, to be signed by the owner or operator and a certified or licensed professional skilled in the appropriate technical discipline.

7. Determination of technical impracticability.

a. The director may determine, based on information developed by the owner or operator or other information, that compliance with a requirement for the remedy is not technically practicable. In making such determinations, the director will consider:

(1) The owner or operator’s efforts to achieve compliance with the requirements; and

(2) Whether other currently available or new and innovative methods or technologies could practicably achieve compliance with the requirements.

b. If the director determines that compliance with a remedy requirement is not technically practicable, the director will modify the order to specify as necessary and appropriate:

(1) Further measures that may be required of the owner or operator to control exposure of humans or the environment to residual contamination, as necessary to protect human health and the environment; and

(2) Alternate levels or measures for cleaning up contaminated media, controlling the sources of contamination, or for removal or decontamination of equipment, units, devices, or structures required to implement the remedy which:

(a) Are technically practicable; and

(b) Are consistent with the overall objectives of the remedy.

8. Interim measures.

a. If at any time the director determines, based on consideration of the factors specified in subdivision 8 b of this subsection, that a release or, based on site-specific circumstances, a threatened release from a solid waste management unit at the site poses a threat to human health or the environment, the owner, operator, or other

responsible party may ~~specify~~ propose interim measures required to abate, stabilize, mitigate, or eliminate the releases or threat of releases.

b. The following factors may be considered by the director in determining whether an interim measure is required:

(1) Time required to develop and implement a final remedy;

(2) Actual or potential exposure of nearby populations or environmental receptors to solid wastes (including hazardous constituents);

(3) Actual or potential contamination of drinking water supplies or sensitive ecosystems;

(4) Further degradation of the medium which may occur if remedial action is not initiated expeditiously;

(5) Presence of uncovered solid wastes (including hazardous constituents) or such wastes in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release;

(6) Presence of high levels of solid wastes (including hazardous constituents) in soils largely at or near the surface, that might migrate;

(7) Weather conditions that may cause solid wastes (including hazardous constituents) to migrate or be released;

(8) Risks of fire or explosion, or potential for exposure to solid wastes (including hazardous constituents) as a result of an accident or failure of a container or handling system;

(9) Other situations that may pose threats to human health and the environment.

c. If the director determines that an interim measure is necessary pursuant to subdivision 8 a of this subsection, the director will notify the owner or operator of the necessary actions required. Such actions shall be implemented as soon as practicable, in accordance with a schedule as specified by the director.

d. Interim measures should, to the extent practicable, be consistent with the objectives of, and contribute to the performance of any remedy which may be required pursuant to subdivision 5 of this subsection.

9. Management of wastes.

a. General.

(1) All solid wastes which are managed pursuant to a remedy required under subdivision 5 of this subsection, or an interim measure required under subdivision 8 of this subsection, shall be managed in a manner:

(a) That is protective of human health and the environment; and

(b) That complies with applicable federal, state and local requirements.

(2) The ~~director will specify in the~~ order will specify the requirements for units in which wastes will be managed, and other waste management activities, as determined by the director to be necessary for protection of human health and the environment.

b. Management of hazardous wastes. Any treatment, storage or disposal of listed or ~~identified~~ characteristic hazardous waste necessary to implement a remedy or an interim measure shall be in accordance with the applicable requirements of Virginia Hazardous Waste Management Regulations (9 VAC 20-60-10 et seq.).

c. Management of non-hazardous solid wastes.

(1) Except as provided in subdivision 9 c (3) of this subsection, treatment, storage and disposal of solid wastes pursuant to a remedy or interim measure required under this subsection shall be in accordance with applicable technical standards for solid waste management as specified in Parts II (9 VAC 20-80-40 et seq.), V (9 VAC 20-80-240 et seq.), VI (9 VAC 20-80-320 et seq.), and VIII (9 VAC 20-80-630 et seq.) of this chapter.

(2) For any unit in which solid wastes will be managed pursuant to a remedy or interim measure, ~~the director may specify additional~~ design and operating standards for the unit may be specified, as necessary to protect human health and the environment. In determining appropriate design and operating requirements for such units, the director will consider the factors specified under subdivision ~~9 c (3) (b)~~ 9 c (3) (d) of this subsection.

(3) (a) For ~~temporary units~~ remediation waste management units (RWMU) in which solid wastes will be stored or treated, the director may determine that a design, operating, or closure standard applicable to such units solely by regulation may be replaced by alternative requirements which are protective of human health and the environment.

(b) Any ~~temporary unit~~ RWMU to which alternative requirements are applied according to subdivision ~~9 c (2)~~ 9 c (3) of this subsection, shall be:

(i) Operated for a period not exceeding 180 calendar days, unless the period is extended under subdivision 9 c (3) (c) of this subsection;

(ii) Located at the site; and

(ii) Used only for treatment or storage of solid wastes (including hazardous constituents) that have originated within the boundary of the site.

(c) The director may grant an extension to the 180-day period ~~of a temporary unit~~ from subdivision 9 c (3) (b) (i) of this subsection if solid wastes shall remain in the unit due to unforeseen, temporary, and uncontrollable circumstances.

(d) In establishing standards to be applied to ~~temporary units~~the RWMU, the director will consider the following factors:

(i) The length of time such units will be in operation.

(ii) Type of unit, and volume of wastes to be managed.

(iii) Potential for releases from the units.

(iv) Physical and chemical characteristics of the wastes to be managed in the units.

(v) Hydrogeological and other relevant environmental conditions at the site which may influence the migration of any potential releases.

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

(e) The ~~director will specify in the~~ order will specify the length of time that ~~such units~~ the RWMU will be allowed to operate, and specific design, operating, and closure requirements for the units.

PART V.

Solid Waste Disposal Facility Standards.

9 VAC 20-80-250. 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 ~~(3,048 meters)~~ of any airport runway end used by turbojet aircraft or within 5,000 feet ~~(1,524 meters)~~ 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 6 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 ~~lateral expansions~~ allowed under § 10.1-1408.5 of the Code of Virginia, shall not be constructed in any tidal wetland or non-tidal 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 9 VAC 25-210-10 et seq. 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 Virginia wetlands laws, the presumption that practicable alternative to the proposed landfill is available which 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 ~~(60 meters)~~ 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 ~~(60 meters)~~ 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. ~~The following~~ 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 ~~readily available cover materials on site or lack of a firm commitment for adequate cover material from a borrow site~~ 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 ~~facility~~,unit even if such ~~facility~~ a unit is closed, will be considered a defect in the site unless the proposed ~~landfill~~ unit can be isolated from the defect by ~~facility construction~~ the nature of the unit design and the ground water for the ~~facility~~ 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 ~~on all sides by natural barriers, fencing, or an equivalent~~ 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 ~~subdivision 3 of this subsection~~ 9 VAC 20-80-300.

8. Each site design shall include a gas management ~~plan~~ system to control decomposition gases generated within a sanitary landfill in accordance with 9 VAC 20-80-280.

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 $1X10^{-7}$ 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 9 VAC 20-80-780 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 9 VAC 20-80-290.

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; ~~and~~

(e) Gas management components; and

~~(e)~~ (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 director 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 director upon request. An additional engineer's certification is required under the provisions of 9 VAC 20-80-550.A.1.

C. Operation.

1. No hazardous wastes as defined by the Virginia Hazardous Waste Management Regulations (9 VAC 20-60-10 et seq.) ~~or materials offering an undue hazard to landfill personnel or the landfill operations~~ other wastes listed in 9 VAC

20-80-250 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 personnell to detect and prevent disposal of ~~hazardous waste, polychlorinated biphenyls (PCB) waste, regulated medical waste, and other unauthorized solid waste~~ such wastes. ~~This~~ In addition to implementing the requirements of the control program for unauthorized waste in 9 VAC 20-80-113, the program shall include, at a minimum:

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

b. ~~Random~~ The procedures for random inspections of incoming loads ~~unless the owner or operator takes other approved means to ensure that~~ to detect whether incoming loads ~~do not~~ 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% of the incoming loads of waste. In addition, if the facility receives waste generated outside of Virginia and the regulatory structure in that state 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 state. All facilities receiving waste generated outside of Virginia shall submit an evaluation consistent with 9 VAC 20-80-113 D;

c. Records of ~~any~~ 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 director 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 ~~within~~ as soon as possible, but no later than 24 hours of 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 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 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 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 ~~otherwise~~ specified by the department when seasonal conditions do not ~~otherwise~~ 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 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 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 9 VAC 20-80-280 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 §§ 1857-1857l).

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 ~~prompt~~ extinguishing ~~of~~ any fires that may ~~result~~ occur at the facility. ~~At the facility there shall be a~~ 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 9 VAC 20-80-520 C 2 k. ~~to~~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 (9 VAC 25-260-10 et seq.).

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 (9 VAC 25-260-10 et seq.).

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

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 9 VAC 20-80-310 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 ~~anatomical waste from health care facilities or~~ regulated medical waste as specified ~~in Waste Management Board's~~ the Regulated Medical Waste Regulations (9 VAC 20-120-10 et seq.).

n. Municipal solid waste.

o. Putrescible waste. Occasional animal carcasses may be disposed of within a sanitary landfill. Large ~~number~~ numbers 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 non-hazardous 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 9 VAC 20-80-290 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 9 VAC 20-80-650.

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 9 VAC 20-80-630 or 9 VAC 20-80-700.

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.

~~1. Applicability.~~

~~a. Owners or operators of existing sanitary landfills shall be in compliance with the ground water monitoring requirements specified in this section, except as provided for in subdivision 1 c of this subsection.~~

~~b. Owners or operators of new facilities shall be in compliance with the ground water monitoring requirements specified in this section before waste can be placed in the landfill except as provided for in subdivision 1 c of this subsection.~~

~~c. Ground water monitoring requirements under this subsection may be suspended by the director for a sanitary landfill unit or facility if the owner or operator can demonstrate that there is no potential for migration of constituents of solid wastes listed in Appendix 5.1 to the uppermost aquifer during the active life of the unit and the post-closure care period. This demonstration shall be certified by a qualified ground water scientist and shall be based upon:~~

~~(1) Site-specific field collected measurements, sampling and analysis of physical, chemical, and biological processes affecting contaminant fate and transport; and~~

~~(2) Contaminant fate and transport predictions that maximize contaminant migration and consider impacts on human health and environment.~~

~~2. General requirements.~~

a. Owners or operators of sanitary landfills shall implement a ground water monitoring program capable of determining the facility's impact on the quality of ground water in the uppermost aquifer underlying the facility.

b. Owners or operators shall install, operate, and maintain a ground water monitoring system which meets the requirements of subdivision 3 of this subsection and shall comply with all other applicable requirements of this section. This ground water monitoring shall be carried out during the active life of the facility and during the post-closure care period.

c. The ground water monitoring and reporting requirements set forth here are minimum requirements. The director may require, by amending the permit, any owner or operator to install, operate and maintain a ground water monitoring system and program that contains the requirements more stringent than this chapter imposes, whenever he determines that such requirements are necessary to prevent significant adverse effects on public health and the environment.

3. Ground water monitoring system.

a. A ground water monitoring system shall be installed consisting of a sufficient number of wells at appropriate locations and depths and capable of yielding ground water samples from the uppermost aquifer that:

(1) Represent the quality of background ground water that has not been affected by leakage from the unit; and

(2) Represent the quality of ground water at the waste management unit boundary. The downgradient monitoring system shall be installed at the waste management unit boundary that ensures detection of ground water contamination in the uppermost aquifer unless a variance has been granted by the director under 9 VAC 20-80-770. When physical obstacles preclude installation of ground water monitoring wells at the waste management unit boundary, the down-gradient monitoring system may be installed at the closest practicable distance hydraulically down-gradient from the boundary that ensures detection of ground water contamination in the uppermost aquifer.

b. The director may approve a multiunit ground water monitoring system instead of separate ground water monitoring systems for each disposal unit when the facility has several units, provided the multi-unit ground water monitoring system meets the requirement of subdivision 3 a of this subsection and will be as protective of human health and the environment as individual monitoring systems for each disposal unit, based on the following factors:

(1) Number, spacing, and orientation of the disposal units;

(2) Hydrogeologic setting;

(3) Site history;

(4) Engineering design of the disposal units; and

~~(5) Type of waste accepted at the disposal units.~~

~~c. All monitoring wells of a size adequate for sampling shall be cased and grouted in a manner that maintains the integrity of the monitoring well bore hole. This casing shall be screened or perforated, and packed with gravel or sand where necessary, to enable sample collection at depths where appropriate aquifer flow zones exist. The annular space above the sampling depth shall be sealed with a suitable material to prevent contamination of samples and the ground water.~~

~~d. A log shall be made of each newly installed monitoring well describing the soils or rock encountered, and the hydraulic conductivity of formations. A copy of the final logs with appropriate maps including at a minimum a site plan showing the location of all monitoring wells shall be sent to the department with the certification required under subdivision 3 f (3) of this subsection.~~

~~e. The monitoring wells, piezometers, and other measurement, sampling, and analytical devices shall be operated and maintained so that they perform to design specifications throughout the life of the monitoring program.~~

~~f. The number, spacing, and depths of monitoring systems shall be:~~

~~(1) Determined based upon site-specific technical information that shall include thorough characterization of:~~

~~(a) Aquifer thickness, ground water flow rate, ground water flow direction including seasonal and temporal fluctuations in ground water flow; and~~

~~(b) Saturated and unsaturated geologic units and fill materials overlying the uppermost aquifer, materials comprising the uppermost aquifer, and materials comprising the confining unit defining the lower boundary of the uppermost aquifer; including, but not limited to: thicknesses, stratigraphy, lithology, hydraulic conductivities, porosities and effective porosities.~~

~~(2) At the minimum,~~ Comprised of ~~at least one up-gradient and three down-gradient monitoring wells, shall be installed.~~

~~(3) Certified by a qualified ground water scientist within 30 days of well installation that the wells have been installed in accordance with the submitted plans. Within 14 days of this certification, the owner or operator shall transmit the certification to the director.~~

~~4. Sampling and analysis. The ground water sampling and analysis requirements for the ground water monitoring system are as follows:~~

~~a. The ground water monitoring program shall include consistent sampling and analysis procedures that are designed to ensure monitoring results that provide an accurate representation of the ground water quality at the background and downgradient wells. At a minimum the program shall include procedures and techniques for:~~

(1) Sample collection;

(2) Sample preservation and shipment;

(3) Analytical procedures;

(4) Chain of custody control; and

(5) Quality assurance and quality control.

b. The ground water monitoring program shall include sampling and analytical methods that are appropriate for ground water sampling and that accurately measure solid waste constituents in ground water samples. The sampling, analysis and quality control/quality assurance methods set forth in EPA document SW-846 shall be used. The department may require resampling if it believes the samples were not properly sampled or analyzed.

c. Ground water elevations at each monitoring well shall be determined immediately prior to purging each time a sample is obtained. The owner or operator shall determine the rate and direction of ground water flow each time ground water is sampled. Ground water elevations in wells which monitor the same waste management area shall be measured within a period of time short enough to avoid temporal variations in ground water flow which could preclude accurate determination of ground water flow rate and direction.

d. The owner or operator shall establish background ground water quality in a hydraulically upgradient or background well, or wells, for each of the monitoring parameters or constituents required in the particular ground water monitoring program that applies to the disposal unit, as determined under subdivision 5 or 6 of this subsection. Background ground water quality may be established at wells that are not located hydraulically upgradient from the disposal unit if it meets the requirements of subdivision 4 e of this subsection.

e. A determination of background quality may be based on sampling of wells that are not upgradient from the waste management area where:

(1) Hydrogeologic conditions do not allow the owner or operator to determine what wells are upgradient; and

(2) Sampling at other wells will provide an indication of background ground water quality that is as representative or more representative than that provided by the upgradient wells.

f. The number of samples collected to establish ground water quality data shall be consistent with the appropriate statistical procedures determined pursuant to subdivision 4 g of this subsection.

g. The owner or operator shall specify in the operation plan one of the statistical methods listed in Appendix 5.4 to be used in evaluating ground water monitoring data for each monitoring parameter or constituent. The statistical test chosen shall be conducted separately for each parameter or constituent in each well.

NOTE: It may be necessary to substitute a statistical method if the original does not meet the performance standard.

h. The owner or operator shall determine whether or not there is a statistically significant increase over background values for each parameter or constituent required in the particular ground water monitoring program that applies to the disposal unit, as determined under subdivision 5 or 6 of this subsection.

(1) In determining whether a statistically significant increase has occurred, the owner or operator shall compare the ground water quality of each parameter or constituent at each monitoring well designated pursuant to subdivision 3 a (1) of this subsection to the background value of that constituent, according to the statistical procedures and performance standards specified in Appendix 5.4 except as provided for in subdivision 5 b (5) (a) of this subsection.

(2) Within 30 days after completing sampling and analysis, the owner or operator shall determine whether there has been a statistically significant increase over background at each monitoring well.

5. Detection monitoring. Detection monitoring is required at all sanitary landfills except as otherwise provided in subdivision 6 of this subsection.

a. Applicability. Unless exempt under subdivision 5 b of this subsection, owners and operators of sanitary landfills shall comply with the detection monitoring requirements according to the following schedule:

(1) All existing facilities and closed facilities that have accepted waste after October 9, 1993, and in the case of a "small landfill" after April 9, 1994, shall be in compliance with the final detection monitoring requirements specified in subdivision 5 c of this subsection by May 23, 2001;

(2) New facilities Facilities placed in operation after October 9, 1993, shall be in compliance with the detection monitoring requirements specified in subdivision 5 c of this subsection before waste can be placed in the unit.

b. Unless an extension to the deadline above has been granted by the director, closed facilities that have ceased to accept any waste on or before October 9, 1993, and in the case of a "small landfill" after April 9, 1994, may comply with the monitoring requirements specified in Appendix 5.6.

c. Detection monitoring program.

(1) Detection monitoring program shall be instituted at all facilities as specified in subdivision 5 a of this subsection at all ground water monitoring wells specified in subdivisions 3 a and 2 b of this subsection. At a minimum, a detection monitoring program shall include the monitoring for the constituents listed in Appendix 5.5.

(2) The monitoring frequency for all constituents listed in Appendix 5.5 shall be at least semiannual during the active life of the facility (including closure) and the post-closure period. A minimum of four independent samples

~~from each well (background and downgradient) shall be collected and analyzed for the Appendix 5.5 constituents during the first semiannual sampling period. The sampling period shall not exceed 180 days. At least one sample from each well (background and downgradient) shall be collected and analyzed during subsequent semiannual sampling events. The director may specify an appropriate alternate frequency for repeated sampling and analysis during the active life (including closure) and the post-closure care period. The alternate frequency during the active life (including closure) shall be no less than annual. The alternate frequency shall be based on consideration of the following factors:~~

~~(a) Lithology of the aquifer and unsaturated zone;~~

~~(b) Hydraulic conductivity of the aquifer and unsaturated zone;~~

~~(c) Ground water flow rates;~~

~~(d) Minimum distance between upgradient edge of the disposal unit and downgradient monitoring well screen (minimum distance of travel); and~~

~~(e) Resource value of the aquifer.~~

~~(3) If the owner or operator determines that there is a statistically significant increase over background as determined by a method meeting the requirements of Appendix 5.4, for one or more of the constituents listed in Appendix 5.5 at any monitoring well at the boundary specified under subdivision 3 a (2) of this subsection, the owner or operator shall:~~

~~(a) Within 14 days of this finding, notify the director of this fact indicating which constituents have shown statistically significant changes from background levels; and~~

~~(b) Establish an assessment monitoring program meeting the requirements of subdivision 6 of this subsection within 90 days except as provided for in subdivision 5 c (4) of this subsection.~~

~~(4) The owner or operator may demonstrate that a source other than the unit caused the contamination or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in ground water quality. A report documenting this demonstration shall be certified by a qualified ground water scientist and approved by the director. If a successful demonstration is made and approved, the owner or operator may continue detection monitoring as specified in this section. If, after 90 days, a successful demonstration is not made, the owner or operator shall initiate an assessment monitoring program as required in subdivision 6 of this subsection. The 90 day period may be extended by the director for good cause.~~

~~6. Assessment monitoring program.~~

a. Unless exempt under subdivision 5 b of this subsection the owner or operator shall implement the assessment monitoring program whenever a statistically significant increase over background has been detected for one or more of the constituents listed in Appendix 5.5.

b. Within 90 days of triggering an assessment monitoring program, and annually thereafter, the owner or operator shall sample and analyze the ground water for all constituents identified in Appendix 5.1. A minimum of one sample from each well specified in subdivisions 3 a (1) and 3 a (2) of this subsection shall be collected and analyzed during each sampling event. For any constituent detected in the downgradient wells as a result of the complete Appendix 5.1 analysis, a minimum of four independent samples from each well (background and downgradient) shall be collected and analyzed to establish background for the detected constituents. The director may approve an appropriate subset of monitoring wells to be sampled and analyzed for Appendix 5.1 constituents during assessment monitoring. The director may delete any of the Appendix 5.1 monitoring parameters for a landfill unit if the owner or operator demonstrates that the deleted constituents are not reasonably expected to be in or derived from the waste contained in the unit.

c. The director may specify an appropriate alternate frequency for repeated sampling and analysis for the full set of Appendix 5.1 constituents required by subdivision 6 b of this subsection during the active life (including closure) and post-closure care of the unit considering the following factors:

(1) Lithology of the aquifer and unsaturated zone;

(2) Hydraulic conductivity of the aquifer and unsaturated zone;

(3) Ground water flow rates;

(4) Minimum distance between upgradient edge of the disposal unit and downgradient monitoring well screen (minimum distance of travel);

(5) Resource value of the aquifer; and

(6) Nature (fate and transport) of any constituents detected in response to subdivision 6 of this section.

d. After obtaining the results from the initial or subsequent sampling events required in subdivision 6 b of this subsection, the owner or operator shall:

(1) Within 14 days, notify the director identifying the Appendix 5.1 constituents that have been detected;

(2) Within 90 days, and on at least a semiannual basis thereafter, resample all wells, conduct analyses for all constituents in Appendix 5.5, and for those constituents in Appendix 5.1 that are detected in response to subdivision 6 b of this subsection, and record their concentrations in the facility operating record. At least one

~~sample from each well (background and downgradient) shall be collected and analyzed during these sampling events;~~

~~(3) Within 90 days, establish background concentrations for any constituents detected pursuant to subdivision 6 b or d (2) of this subsection; and~~

~~(4) Within 90 days, establish ground water protection standards for all constituents detected pursuant to paragraph subdivision 6 b or d of this subsection. The ground water protection standards shall be established in accordance with subdivision 6 h or i of this subsection and placed in the facility's operating record. A copy will also be forwarded to the director.~~

~~e. If the concentrations of all Appendix 5.1 constituents are shown to be at or below background values, using the statistical procedures in Appendix 5.4, for two consecutive sampling events, the owner or operator shall notify the director of this finding and may return to detection monitoring.~~

~~f. If the concentrations of any Appendix 5.1 constituents are above background values, but all concentrations are below the ground water protection standard established under subdivision 6 h or i of this subsection, using the statistical procedures in Appendix 5.4, the owner or operator shall continue assessment monitoring in accordance with this section.~~

~~g. If one or more Appendix 5.1 constituents are detected at statistically significant levels above the ground water protection standard established under subdivision 6 h or i of this subsection in any sampling event, the owner or operator shall, within 14 days of this finding, notify the director identifying the Appendix 5.1 constituents that have exceeded the ground water protection standard. The owner or operator also shall:~~

~~(1) (a) Characterize the nature and extent of the release by installing additional monitoring wells as necessary;~~

~~(b) Install at least one additional monitoring well at the facility boundary in the direction of contaminant migration and sample this well in accordance with subdivision 6 d (2) of this subsection;~~

~~(c) Notify all persons who own the land or reside on the land that directly overlies any part of the plume of contamination if contaminants have migrated off site if indicated by sampling of wells in accordance with subdivision 6 g (1) of this subsection; and~~

~~(d) Initiate an assessment of corrective measures as required by 9 VAC 20-80-310 A within 90 days; or~~

~~(2) May demonstrate that a source other than the unit caused the contamination, or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in ground water quality. A report documenting this demonstration shall be certified by a qualified ground water scientist or approved by the director. If a successful demonstration is made, the owner or operator shall continue monitoring~~

in accordance with the assessment monitoring program pursuant to subdivision 6 of this subsection, and may return to detection monitoring if the Appendix 5.1 constituents are at or below background as specified in subdivision 6 e of this subsection. Until a successful demonstration is made, the owner or operator shall comply with subdivision 6 g of this subsection including initiating an assessment of corrective measures.

h. The owner or operator shall determine a ground water protection standard for each Appendix 5.1 constituent detected in the ground water. The ground water protection standard shall be:

(1) For constituents for which a maximum contaminant level (MCL) has been promulgated under Section 1412 of the Safe Drinking Water Act (40 CFR Part 141), the MCL for that constituent;

(2) For constituents for which MCLs have not been promulgated, the background concentration, as approved by the director, for the constituent established from wells in accordance with subdivision 3 a (1) of this subsection; or

(3) For constituents for which the background level is higher than the MCL identified under subdivision 6 h (1) of this subsection or health based levels identified under subdivision 6 i of this subsection, the background concentration as approved by the director.

i. The director may establish an alternative ground water protection standard for constituents for which MCLs have not been established by granting a variance based on the petition submitted by the owner or operator in accordance with 9 VAC 20-80-760.

7. Reserved.

8. Recordkeeping and reporting.

a. If the ground water is monitored to satisfy the requirements of subdivision 5 of this subsection, the owner or operator shall:

(1) Keep records of the analyses, the associated static water level surface elevations, and the evaluations required in subdivision 5 b or 6 of this subsection throughout the active life of the facility and the post-closure care period; and

(2) Report the following ground water monitoring information to the director:

(a) During the first year when initial background concentrations are being established for the facility: concentrations or values of the parameters for each ground water monitoring well within 15 days after completing each analysis.

~~(b) Annually for concentrations or values of the parameters listed in for each ground water monitoring well, along with the required evaluations for these parameters. During the active life of the facility, this information shall be submitted no later than March 1 following each calendar year.~~

~~(c) No later than March 1 following each calendar year as part of the annual report: results of the evaluations of ground water surface elevations plotted on a potentiometric map using recent ground water data from the previous calendar year, and a description of the response to that evaluation, where applicable.~~

~~b. If the ground water is monitored to satisfy the requirements of subdivision 6 of this subsection, the owner or operator shall:~~

~~(1) Keep records of the analyses and evaluations throughout the active life of the facility, and throughout the post-closure care period as well; and~~

~~(2) Annually, until final closure of the facility, submit to the executive director a report containing the results of his ground water quality assessment program which includes, but is not limited to, the calculated or measured rate of migration of solid waste constituents in the ground water during the reporting period. This information shall be submitted no later than March 1 following each calendar year.~~

Ground water monitoring program shall be instituted at all sanitary landfills in accordance with the requirements contained in 9 VAC 20-80-300.

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 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 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 director whenever an amended closure plan has been prepared and placed in the operating record.

d. ~~Prior~~ 180 days prior to beginning closure of each solid waste disposal unit, the owner or operator shall notify the director 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 director 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 ~~it has survived the first mowing and~~ there are no large areas void of vegetation and it is sufficient to control erosion.

b. Following ~~closure of~~ construction of the final cover system for each unit, the owner or operator shall submit to the director 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 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 director 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 5d(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 ~~necessary~~ construction or such other steps ~~as may be~~ 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 b~~ 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 ~~each~~ all disposal ~~unit~~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 9 VAC 20-80-290 and 9 VAC 20-80-300. 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 9 VAC 20-80-280.

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 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 director 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.

9 VAC 20-80-260. Construction/demolition/debris (CDD) landfills.

Construction/demolition/debris landfills may only receive demolition waste, construction waste, debris waste, land clearing debris, ~~discarded~~ 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 facility, even if such facility is closed, will be considered a defect in the site unless the proposed landfill can be isolated from the defect by facility construction and the ground water under the site 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 $1X10^{-7}$ 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 9 VAC 20-80-290. 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 9 VAC 20-80-250 B 9 and a leachate collection system as required by 9 VAC 20-80-290.

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 9 VAC 20-80-280. ~~Gas migration to the facility boundary requires the immediate installation of barriers to prevent migration off site.~~

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 ~~subdivision D 3 of this subsection~~ 9 VAC 20-80-300.

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 $1X10^{-7}$ 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 no less than $1X10^{-3}$ cm/sec when placed.

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 protected with a 12-inch drainage layer and six inches of a protective layer~~A 12 inch drainage layer for leachate removal and a 6 inch protective layer with a hydraulic conductuivity of 1 X 10^{-3} cm/sec or greater (lab tested) placed above the drainage layer.

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 drainage layer consisting of 12 inches of $1X10^{-3}$ cm/sec permeable material with a network of perforated pipe above the bottom or secondary liner to function as a witness zone or monitoring zone, or an equivalent design.

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

(5) A 12 inch drainage layer for leachate removal and a 6 inch protective layer ~~of 12 inches of granular material~~ with a hydraulic conductivity of $1X10^{-3}$ cm/sec or greater (lab tested) placed above the drainage layer.

15. If five-foot separation from seasonal high ground water can be demonstrated, a separate, ~~unlined~~ area may be established to receive only stumps, brush, leaves and land clearing debris. Such an ~~unlined~~ 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, 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 director 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 director upon request.

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 through an active safety program.

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 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 9 VAC 20-80-520 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 C10 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 b of this subsection and be graded to prevent ponding and to accelerate surface run-off.

d. ~~Upon completion of disposal operations, or when operations are to be suspended for six months or more, final cover construction will be initiated in accordance with the requirements of subsection E of this section.~~ 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 9 VAC 20-80-310 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 (9 VAC 25-31-10 et seq.).

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

D. Ground water monitoring.

~~1. Applicability.~~

~~a. Owners or operators of existing CDD landfills shall be in compliance with the ground water monitoring requirements specified in this section, except as provided for in subdivision 1 c of this subsection.~~

~~b. Owners or operators of new facilities shall be in compliance with the ground water monitoring requirements specified in this section before waste can be placed in the landfill except as provided for in subdivision 1 c of this subsection.~~

~~c. Ground water monitoring requirements under this subsection may be suspended by the director for a CDD landfill unit or facility if the owner or operator can demonstrate that there is no potential for migration of constituents of solid wastes listed in Appendix 5.1 to the uppermost aquifer during the active life of the unit and the post-closure care period. This demonstration shall be certified by a qualified ground water scientist and shall be based upon:~~

~~(1) Site-specific field collected measurements, sampling and analysis of physical, chemical, and biological processes affecting contaminant fate and transport; and~~

~~(2) Contaminant fate and transport predictions that maximize contaminant migration and consider impacts on human health and environment.~~

~~2. General requirements.~~

~~a. Owners or operators of CDD landfills shall implement a ground water monitoring program capable of determining the facility's impact on the quality of ground water in the uppermost aquifer underlying the facility.~~

b. Owners or operators shall install, operate, and maintain a ground water monitoring system which meets the requirements of subdivision 3 of this subsection and shall comply with subdivisions 4 and 5 of this subsection. This ground water monitoring shall be carried out during the active life of the facility and during the post-closure care period.

c. The ground water monitoring and reporting requirements set forth here are minimum requirements. The director may require, by amending the permit, any owner or operator to install, operate and maintain a ground water monitoring system and program that contains the requirements more stringent than this chapter imposes, whenever he determines that such requirements are necessary to prevent significant adverse effects on public health and environment.

3. Ground water monitoring system.

a. A ground water monitoring system shall be capable of yielding ground water samples for analysis and shall consist of:

(1) At least one monitoring well installed hydraulically upgradient from the waste management unit boundary. Their number, locations, and depths shall be sufficient to yield ground water samples that are:

(a) Representative of background ground water quality in the uppermost aquifer near the facility; and

(b) Not affected by the facility.

(2) At least three monitoring wells installed hydraulically downgradient at the waste management unit boundary or closest practicable distance from such boundary. Their number, locations, and depths shall insure that they immediately detect any statistically significant amounts of solid waste constituents that migrate from the waste management area to the uppermost aquifer.

b. All monitoring wells, sized adequately for proper sampling, shall be cased and grouted in a manner that maintains the integrity of the monitoring well bore hole. This casing shall be screened or perforated, and packed with gravel or sand where necessary, to enable sample collection at depths where appropriate aquifer flow zones exist. The annular space above the sampling depth shall be sealed with a suitable material to prevent contamination of samples and the ground water.

c. A log shall be made of each newly installed monitoring well describing the soils or rock encountered and the hydraulic conductivity of formations. A copy of the logs with appropriate maps shall be sent to the department.

4. Sampling and analysis. The ground water sampling and analysis requirements for the ground water monitoring system are as follows:

~~a. The ground water monitoring program shall include consistent sampling and analysis procedures that are designed to ensure monitoring results that provide an accurate representation of the ground water quality at the background and downgradient wells. At a minimum the program shall include procedures and techniques for:~~

~~(1) Sample collection;~~

~~(2) Sample preservation and shipment;~~

~~(3) Analytical procedures;~~

~~(4) Chain of custody control; and~~

~~(5) Quality assurance and quality control.~~

~~b. The ground water monitoring program shall include sampling and analytical methods that are appropriate for ground water sampling and that accurately measure solid waste constituents in ground water samples. The sampling and analysis methods set forth in EPA document SW-846 shall be used, and the department may require resampling if it believes the samples were not properly sampled or analyzed.~~

~~c. The owner or operator shall determine the ground water flow rate and direction of ground water in the uppermost aquifer at least annually.~~

~~d. Elevation of the static water level at each monitoring well shall be determined each time a sample is obtained.~~

~~e. Background quality at existing units may be based on sampling of wells that are not upgradient from the waste management area where:~~

~~(1) Hydrogeologic conditions do not allow the owner or operator to determine what wells are upgradient; and~~

~~(2) Sampling at other wells will provide an indication of background ground water quality that is as representative or more representative than that provided by the upgradient wells.~~

~~5.~~ Ground water monitoring program. A ground water monitoring program shall be instituted at all CDD landfills in accordance with the requirements contained in ~~Appendix 5.6~~ 9 VAC 20-80-300.

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 x 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 director 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 director 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 director 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 it has survived the first mowing and there are no large areas void of vegetation.

b. Following closure of each unit, the owner or operator shall submit to the director 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 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.

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 necessary construction or such other steps as may be 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 b 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 each disposal unit, the owner or operator shall conduct post-closure care. 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 9 VAC 20-80-290 and 9 VAC 20-80-300, 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 9 VAC 20-80-280.

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 director 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.

9 VAC 20-80-270. Industrial waste disposal facilities.

Facilities intended primarily for the disposal of non-hazardous 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 non-sudden 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

a. 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 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; 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 9 VAC 20-80-250 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 facility, even if such facility is closed, will be considered a defect in the site unless the proposed landfill can be isolated from the defect by facility construction and the ground water under the site 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 9 VAC 20-80-290.

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 ~~subdivision D 3 of this subsection~~ 9 VAC 20-80-300.

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 $1X10^{-7}$ 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 no less than $1X10^{-3}$ cm/sec when placed.

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 protected with a 12-inch drainage layer and six inches of a protective layer~~A 12 inch drainage layer for leachate removal and a 6 inch protective layer with a hydraulic conductuivity of 1 X 10^{-3} cm/sec or greater (lab tested) placed above the drainage layer.

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 drainage layer consisting of 12 inches of $1X10^{-3}$ cm/sec permeable material with a network of ~~four inch diameter schedule 80 PVC~~ perforated pipe ~~leachate drain~~ above the bottom or secondary liner to function as a witness zone or monitoring zone, or an equivalent design.

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

(5) A 12 inch drainage layer for leachate removal and a 6 inch protective layer with a hydraulic conductuivity of 1 X 10^{-3} cm/sec or greater (lab tested) placed above the drainage layer.

15. The leachate collection system shall be placed above the top liner in accordance with the requirements of 9 VAC 20-80-290. 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 9 VAC 20-80-250 B 9 and a leachate collection system as required by 9 VAC 20-80-290.

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 9 VAC 20-80-280.

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, 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 director 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 director upon request.

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 through an active safety program.

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 9 VAC 20-80-180 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 9 VAC 20-80-310 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 (9 VAC 25-31-10 et seq.).

D. Ground water monitoring.

~~1. Applicability.~~

~~a. Owners or operators of existing industrial landfills shall be in compliance with the ground water monitoring requirements specified in this section, except as provided for in subdivision 1 c of this subsection.~~

~~b. Owners or operators of new facilities shall be in compliance with the ground water monitoring requirements specified in this section before waste can be placed in the landfill except as provided for in subdivision 1 c of this subsection.~~

c. Ground water monitoring requirements under this subsection may be suspended by the director for an industrial landfill unit or facility if the owner or operator can demonstrate that there is no potential for migration of constituents of solid wastes listed in Appendix 5.1 to the uppermost aquifer during the active life of the unit and the post-closure care period. This demonstration shall be certified by a qualified ground water scientist and shall be based upon:

(1) Site-specific field collected measurements, sampling and analysis of physical, chemical, and biological processes affecting contaminant fate and transport; and

(2) Contaminant fate and transport predictions that maximize contaminant migration and consider impacts on human health and environment.

2. General requirements.

a. Owners or operators of industrial waste disposal facilities shall implement a ground water monitoring program capable of determining the facility's impact on the quality of ground water in the uppermost aquifer underlying the facility.

b. Owners or operators shall install, operate, and maintain a ground water monitoring system which meets the requirements of subdivision 3 of this subsection and shall comply with subdivisions 4 and 5 of this subsection. This ground water monitoring shall be carried out during the active life of the facility and during the post-closure care period.

c. The ground water monitoring and reporting requirements set forth herein are minimum requirements. The director may require, by amending the permit, any owner or operator to install, operate and maintain a ground water monitoring system and program that contains the requirements more stringent than this chapter imposes, whenever he determines that such requirements are necessary to prevent significant adverse effects on public health and environment.

3. Ground water monitoring system.

a. A ground water monitoring system shall be capable of yielding ground water samples for analysis and shall consist of:

(1) At least one monitoring well installed hydraulically upgradient from the waste management unit boundary. Their number, locations, and depths shall be sufficient to yield ground water samples that are:

(a) Representative of background ground water quality in the uppermost aquifer near the facility; and

(b) Not affected by the facility.

(2) At least three monitoring wells installed hydraulically downgradient at the waste management unit boundary or closest practicable distance from such boundary. Their number, locations, and depths shall insure the early

detection of any statistically significant amounts of solid waste constituents that migrate from the waste management area to the uppermost aquifer.

b. All monitoring wells shall be cased and grouted in a manner that maintains the integrity of the monitoring well bore hole. This casing shall be screened or perforated, and packed with gravel or sand where necessary, to enable sample collection at depths where appropriate aquifer flow zones exist. The annular space above the sampling depth shall be sealed with a suitable material to prevent contamination of samples and the ground water.

c. A log shall be made of each newly installed monitoring well describing the soils or rock encountered, the hydraulic conductivity of formations, and the cation exchange capacity of soils encountered. A copy of the final logs with appropriate maps shall be sent to the department.

4. Sampling and analysis. The ground water sampling and analysis requirements for the ground water monitoring system are as follows:

a. The ground water monitoring program shall include consistent sampling and analysis procedures that are designed to ensure monitoring results that provide an accurate representation of the ground water quality at the background and downgradient wells. At a minimum the program shall include procedures and techniques for:

(1) Sample collection;

(2) Sample preservation and shipment;

(3) Analytical procedures;

(4) Chain of custody control; and

(5) Quality assurance and quality control.

b. The ground water monitoring program shall include sampling and analytical methods that are appropriate for ground water sampling and that accurately measure hazardous constituents in ground water samples. The sampling and analysis methods set forth in EPA document SW-846 shall be used, and the department may require resampling if it believes the samples were not properly sampled or analyzed.

c. The owner or operator shall determine the ground water flow rate and direction of ground water in the uppermost aquifer at least annually.

d. Elevation of the static water level at each monitoring well shall be determined each time a sample is obtained.

e. Background quality at existing units may be based on sampling of wells that are not upgradient from the waste management area where:

(1) Hydrogeologic conditions do not allow the owner or operator to determine what wells are upgradient; and

~~(2) Sampling at other wells will provide an indication of background ground water quality that is as representative or more representative than that provided by the upgradient wells.~~

~~5~~. Ground water monitoring program. Ground water monitoring program shall be instituted at all industrial waste landfills in accordance with the requirements contained in ~~Appendix 5.6.~~ 9 VAC 20-80-300.

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 director 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 director 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 director 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 it has survived the first mowing and there are no large areas void of vegetation.

b. Following closure of each unit, the owner or operator shall submit to the director 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 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) Provide a suitable vegetative cover. Vegetation shall be deemed properly established when it has survived the first mowing and there are no large areas void of vegetation.

(3) 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.

(4) 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.

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 necessary construction or such other steps as may be 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 b 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 each disposal unit, the owner or operator shall conduct post-closure care. 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 9 VAC 20-80-290 and 9 VAC 20-80-300. 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 9 VAC 20-80-280.

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 director 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.

9 VAC 20-80-280. 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 where required under 9 VAC 20-80-250 B 8, 9 VAC 20-80-260 B 9, or 9 VAC 20-80-270 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 Part 750 (Standards of performance for new and guidelines for control of existing municipal solid waste landfills) and 9 VAC 5-40-5800, 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. 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 monitoring data collected. The request for reduction of monitoring or control activities shall be submitted in writing to the director.

B. Monitoring. To ensure that the conditions of this section are met, 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 Part 750, and 9 VAC 5-40-5800.

C. Monitoring frequency.

1. As a minimum, quarterly monitoring is required.

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.

D. Recordkeeping. The owner or operator shall keep the records of the results of gas monitoring 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.

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 as 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, ~~develop~~ implement a remediation plan for the methane gas releases and submit it to the director for approval and amendment of the facility permit. The plan shall describe the nature and extent of the problem and the proposed remedy.

d. As soon as technically practicable, design and construct a gas control system, within a period of time specified in the approved plan. Installation of the system shall be in accordance with a design and in a manner approved for construction by the department.

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 Part 750) and 9 VAC 5-40-5800. 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 9 VAC 5-80-40 or other state air pollution control regulations.

9 VAC 20-80-300. Groundwater Monitoring Program.

A. General Groundwater Requirements

1. Applicability.

a. Owners or operators of all existing landfills shall be in compliance with the ground water monitoring requirements specified in this section, except as provided for in subdivision 1 c of this subsection.

b. Owners or operators of new facilities shall be in compliance with the ground water monitoring requirements specified in this section before waste can be placed in the landfill except as provided for in subdivision 1 c of this subsection.

c. Ground water monitoring requirements under this subsection may be suspended by the director for a landfill unit or facility if the owner or operator can demonstrate that there is no potential for migration of constituents of solid wastes listed in Table 5.1 to the uppermost aquifer during the active life of the unit and the post-closure care period. This demonstration shall be certified by a qualified ground water scientist and shall be based upon:

(1) Site-specific field collected measurements, sampling and analysis of physical, chemical, and biological processes affecting contaminant fate and transport; and

(2) Contaminant fate and transport predictions that maximize contaminant migration and consider impacts on human health and the environment.

2. General requirements.

a. Owners or operators of all landfills shall implement a ground water monitoring program capable of determining the facility's impact on the quality of ground water in the uppermost aquifer underlying the facility.

b. Owners or operators shall install, operate, and maintain a ground water monitoring system which meets the requirements of subdivision 3 of this subsection and shall comply with all other applicable requirements of this section. This ground water monitoring shall be carried out during the active life of the facility and during the post-closure care period.

c. The ground water monitoring and reporting requirements set forth here are minimum requirements. The director may require, by amending the permit, any owner or operator to install, operate and maintain a ground water monitoring system and conduct a monitoring program that contains requirements more stringent than this chapter imposes, whenever he determines that such requirements are necessary to prevent significant adverse effects on public health and the environment.

3. Ground water monitoring system.

a. A ground water monitoring system shall be installed consisting of a sufficient number of wells, at appropriate locations and depths, capable of yielding ground water samples from the uppermost aquifer that:

(1) Represent the quality of background ground water that has not been affected by a release from the waste management unit; and

(2) Represent the quality of ground water at the waste management unit boundary. The downgradient monitoring system shall be installed at the waste management unit boundary that ensures detection of ground water contamination in the uppermost aquifer unless a variance has been granted by the director under 9 VAC 20-80-770. When physical obstacles preclude installation of ground water monitoring wells at the waste management unit boundary, the downgradient monitoring system may be installed at the closest practicable distance hydraulically downgradient from the boundary that ensures detection of ground water contamination in the uppermost aquifer.

b. The director may approve a multiunit ground water monitoring system instead of separate ground water monitoring systems for each waste management unit when the facility has several units, provided the multi-unit ground water monitoring system meets the requirement of subdivision 3 a of this subsection and will be as protective of human health and the environment as individual monitoring systems for each waste disposal unit, based on the following factors:

(1) Number, spacing, and orientation of the waste management units;

(2) Hydrogeologic setting;

(3) Site history;

(4) Engineering design of the waste management units; and

(5) Type of waste accepted at the waste management units.

c. All monitoring wells of a size adequate for sampling shall be cased and grouted in a manner that maintains the integrity of the monitoring well bore hole. This casing shall be screened or perforated, and packed with gravel or sand where necessary, to enable sample collection at depths where appropriate aquifer flow zones exist. The

annular space above the sampling depth shall be sealed with a suitable material to prevent contamination of samples and the ground water.

d. A log shall be made of each newly installed monitoring well describing the soils or rock encountered, and the hydraulic conductivity of formations. A copy of the final logs with appropriate maps, including at a minimum a site plan showing the location of all monitoring wells, shall be sent to the department with the certification required under subdivision 3 f (3) of this subsection.

e. The monitoring wells, piezometers, and other measurement, sampling, and analytical devices shall be operated and maintained so that they perform to design specifications throughout the life of the groundwater monitoring program.

f. The number, spacing, and depths of monitoring wells shall be:

(1) Determined based upon site-specific technical information that shall include thorough characterization of:

(a) Aquifer thickness, ground water flow rate, ground water flow direction including seasonal and temporal fluctuations in ground water flow; and

(b) Saturated and unsaturated geologic units and fill materials overlying the uppermost aquifer, materials comprising the uppermost aquifer, and materials comprising the confining unit defining the lower boundary of the uppermost aquifer; including, but not limited to: thicknesses, stratigraphy, lithology, hydraulic conductivities, porosities and effective porosities.

(2) At least one upgradient and three downgradient monitoring wells shall be required within a compliance network.

(3) Within 30 days of well installation, certified by a qualified ground water scientist noting that the wells have been installed in accordance with the plans submitted under the provisions of subdivision 3d of this subsection.

(4) Within 14 days of this certification, the owner or operator shall transmit the certification to the director.

4. Sampling and analysis. The ground water sampling and analysis requirements for the ground water monitoring system are as follows:

a. The ground water monitoring program shall include consistent field sampling and laboratory analysis procedures that are designed to ensure monitoring results that provide an accurate representation of the ground water quality at the background and downgradient wells. At a minimum the program shall include procedures and techniques for:

(1) Sample collection;

(2) Sample preservation and shipment;

(3) Analytical procedures;

(4) Chain of custody control; and

(5) Quality assurance and quality control.

b. The ground water monitoring program shall include sampling and analytical methods that are appropriate for ground water sampling and that accurately measure solid waste constituents in ground water samples. The sampling, analysis and quality control/quality assurance methods set forth in EPA document SW-846 shall be used. The department may require resampling if it believes the samples were not properly sampled or analyzed.

c. Ground water elevations at each monitoring well shall be determined immediately prior to purging each time a sample is obtained. The owner or operator shall determine the rate and direction of ground water flow each time ground water is sampled. Ground water elevations in wells which monitor the same waste management area shall be measured within a period of time short enough to avoid temporal variations in ground water flow which could preclude accurate determination of ground water flow rate and direction.

d. The owner or operator shall establish background ground water quality in a hydraulically upgradient or background well, or wells, for each of the monitoring parameters or constituents required in the particular ground water monitoring program that applies to the waste disposal unit, as determined under subsections B and C of this section. Background ground water quality may be established at wells that are not located hydraulically upgradient from the disposal unit if they meet the requirements of subdivision 4 e of this subsection.

e. A determination of background quality may be based on sampling of wells that are not upgradient from the waste management area where:

(1) Hydrogeologic conditions do not allow the owner or operator to determine what wells are upgradient; and

(2) Sampling at other wells will provide an indication of background ground water quality that is as representative or more representative than that provided by the upgradient wells.

f. The number of samples collected to establish ground water quality data shall be consistent with the appropriate statistical procedures determined pursuant to subdivision 4 g of this subsection.

g. The owner or operator shall specify in the groundwater monitoring plan one of the statistical methods listed in section D to be used in evaluating ground water monitoring data for each monitoring parameter or constituent. The statistical test chosen shall be conducted separately for each parameter or constituent in each well.

NOTE: It may be necessary to substitute a statistical method if the original does not meet the performance standard.

h. The owner or operator shall determine whether or not there is a statistically significant increase (or decrease for pH) over background values for each parameter or constituent required in the particular ground water monitoring program that applies to the waste disposal unit, as determined under subsection B or C of this section.

(1) In determining whether a statistically significant increase (or decrease for pH) has occurred, the owner or operator shall compare the ground water quality of each parameter or constituent at each monitoring well, designated pursuant to subdivision 3 a (2) of this subsection, to the background value of that constituent. Comparisons will be made according to the statistical procedures and performance standards specified in subsection D of this section.

(2) Within 30 days after completing sampling and analysis, the owner or operator shall determine whether there has been a statistically significant increase over background at each monitoring well.

B. Monitoring for Sanitary Landfills

1. Applicability

a. All existing sanitary landfills facilities and closed facilities that have accepted waste after October 9, 1993, and in the case of a “small landfill” after April 9, 1994, shall be in compliance with the detection monitoring requirements specified in subdivision 2 c of this subsection by May 23, 2001;

b. Facilities placed in operation after October 9, 1993, shall be in compliance with the detection monitoring requirements specified in subdivision 2 c of this subsection before waste can be placed in the unit.

c. Unless an extension to the deadline above has been granted by the director, closed facilities that have ceased to accept any waste on or before October 9, 1993, and in the case of a “small landfill” April 9, 1994, may comply with the monitoring requirements specified in section C.

d. Owners or operators of disposal facilities not subject to the federal ground water monitoring requirements prescribed under 40 CFR Parts 257 and 258 will perform the ground water monitoring described in section C.

e. Owners or operators of sanitary landfills that accepted waste after June 30, 1999 must perform quarterly groundwater monitoring unless the director determines that less frequent monitoring is necessary consistent with the requirements of the special provisions regarding wetlands in 10.1-1408.5 of the Code of Virginia. This requirement will not limit the authority of the Waste Management Board or the director to require more frequent monitoring.

2. Detection monitoring. Detection monitoring is required at all sanitary landfills except as otherwise provided in subdivision 1 and subdivision 3 of this subsection.

a. The monitoring frequency for all constituents listed in Table 5.5 shall be as follows:

(1) Initial sampling event. A minimum of four independent samples from each well (background and downgradient) shall be collected and analyzed for the Table 5.5 constituents during the first quarterly or semiannual sampling period. The initial sampling period shall not exceed 180 days.

(2) Subsequent sampling events. At least one sample from each well (background and downgradient) shall be collected and analyzed during subsequent quarterly or semiannual sampling events, as required under the provisions of subdivision B 1 e of this subsection, during the active life of the facility and during the post closure period.

(3) Alternate sampling events. The director may specify an appropriate alternate frequency for repeated sampling and analysis during the active life (including closure) and the post-closure care period. The alternate frequency during the active life (including closure) shall be no less than annual. The alternate frequency shall be based on consideration of the following factors:

(a) Lithology of the aquifer and unsaturated zone;

(b) Hydraulic conductivity of the aquifer and unsaturated zone;

(c) Ground water flow rates;

(d) Minimum distance between upgradient edge of the disposal unit and downgradient monitoring well screen (minimum distance of travel); and

(e) Resource value of the aquifer.

b. If the owner or operator determines that there is a statistically significant increase over background as determined by a method meeting the requirements of section D for one or more of the constituents listed in Table 5.5 at any monitoring well at the waste management unit boundary specified under subdivision A 3 a (2) of this subsection, the owner or operator shall:

(1) Within 14 days of this finding, notify the director of this fact, indicating which constituents have shown statistically significant changes from background levels; and

(2) Within 90 days, establish an assessment monitoring program meeting the requirements of subdivision 3 of this subsection except as provided for in subdivision 2 c of this subsection.

c. The owner or operator may demonstrate that a source other than the unit caused the contamination or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in ground water quality. A report documenting this demonstration shall be certified by a qualified ground water scientist and submitted within 90 days for approval by the director. If a successful demonstration is made and approved, the owner or operator may continue detection monitoring as specified in this section.

d. If, after 90 days, a successful demonstration is not made, the owner or operator shall initiate an assessment monitoring program as required in subdivision 3 of this subsection. The 90 day period may be extended by the director for good cause.

3. Assessment monitoring program.

a. Unless exempt under subdivision 1 c of this subsection, the owner or operator shall implement the assessment monitoring program whenever a statistically significant increase over background has been detected for one or more of the constituents listed in Table 5.5.

b. Within 90 days of triggering an assessment monitoring program, and annually thereafter, the owner or operator shall sample and analyze the ground water for all constituents identified in Table 5.1. A minimum of one sample from each well specified in subdivisions A 3 a (1) and A 3 a (2) of this subsection shall be collected and analyzed during each sampling event. The director may approve an appropriate subset of monitoring wells to be sampled and analyzed for Table 5.1 constituents during assessment monitoring. The director may delete any of the Table 5.1 monitoring parameters for a landfill unit if the owner or operator demonstrates that the deleted constituents are not reasonably expected to be in or derived from the waste contained in the unit.

c. The director may specify an appropriate alternate frequency for repeated sampling and analysis for the full set of Table 5.1 constituents required by subdivision 3 b of this subsection during the active life (including closure) and post-closure care of the unit considering the following factors:

(1) Lithology of the aquifer and unsaturated zone;

(2) Hydraulic conductivity of the aquifer and unsaturated zone;

(3) Ground water flow rates;

(4) Minimum distance between upgradient edge of the disposal unit and downgradient monitoring well screen (minimum distance of travel);

(5) Resource value of the aquifer; and

(6) Nature (fate and transport) of any constituents detected in response to subdivision 3 of this section.

d. After obtaining the results from the initial or subsequent sampling events required in subdivision 3 b of this subsection, the owner or operator shall:

(1) Within 14 days, notify the director identifying the Table 5.1 constituents that have been detected;

(2) Within 90 days, and on at least a semiannual basis thereafter, resample all wells, conduct analyses for all constituents in Table 5.5, and for those constituents in Table 5.1 that are detected in response to subdivision 3 b

of this subsection, and record their concentrations in the facility operating record. At least one sample from each well (background and downgradient) shall be collected and analyzed during these sampling events;

(3) Within 90 days, establish background concentrations for any constituents detected pursuant to subdivision 3 b or d (2) of this subsection. A minimum of four independent samples from each well (background and downgradient) shall be collected and analyzed to establish background for the detected constituents; and

(4) Within 90 days, submit proposed ground water protection standards for all constituents detected to paragraph subdivision 3 b or d of this subsection. The ground water protection standards shall be established in accordance with subdivision 3 h or i of this subsection and placed in the facility's operating record.

(a) No later than 60 days after approval of groundwater protection standards, the owner or operator shall submit an updated Groundwater Monitoring Plan which details the site monitoring well network and sampling and analysis procedures undertaken during groundwater monitoring events.

(b) No later than 30 days after the approval of the Groundwater Monitoring Plan, the owner or operator shall request a permit amendment to incorporate the plan and related groundwater monitoring modules into the facility's permit in accordance with 9 VAC 20-80-620.

(c) If the 30 day timeframe specified in subdivision 3 d (4) (b) of this subsection is exceeded, the director will modify the permit.

(d) For subdivisions (a) and (b) of this subsection, the director may waive the requirement for a permit amendment if the Groundwater Monitoring Plan has recently been amended or is otherwise up-to-date.

e. If the concentrations of all Table 5.1 constituents are shown to be at or below background values, using the statistical procedures in section D, for two consecutive Table 5.1 sampling events, the owner or operator shall notify the director of this finding and may return to detection monitoring.

f. If the concentrations of any Table 5.1 constituents are above background values, but all concentrations are below the ground water protection standard established under subdivision 3 h or i of this subsection, using the statistical procedures in section D, the owner or operator shall continue assessment monitoring in accordance with this section.

g. If one or more Table 5.1 constituents are detected at statistically significant levels above the ground water protection standard established under subdivision 3 h or i of this subsection in any sampling event, the owner or operator shall, within 14 days of this finding, notify the director identifying the Table 5.1 constituents that have exceeded the ground water protection standard. The notification will include a statement that within 90 days the owner or operator will either:

(1) (a) Characterize the nature and extent of the release by installing additional monitoring wells as necessary;

(b) Install at least one additional monitoring well at the facility boundary in the direction of contaminant migration and sample this well in accordance with subdivision 3 d (2) of this subsection;

(c) Notify all persons who own the land or reside on the land that directly overlies any part of the plume of contamination if contaminants have migrated off-site if indicated by sampling of wells in accordance with subdivision 3 g (1) of this subsection; and

(d) Initiate an assessment of corrective measures as required by 9 VAC 20-80-310 A within 90 days; or

(2) Demonstrate that a source other than the unit caused the contamination, or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in ground water quality. A report documenting this demonstration shall be certified by a qualified ground water scientist and approved by the director. If a successful demonstration is made, the owner or operator shall continue monitoring in accordance with the assessment monitoring program pursuant to subdivision 3 of this subsection, and may return to detection monitoring only if the Table 5.1 constituents are at or below background as specified in subdivision 3 e of this subsection. Until a successful demonstration is made, the owner or operator shall comply with subdivision 3 g of this subsection including initiating an assessment of corrective measures.

h. The owner or operator shall determine a ground water protection standard for all Table 5.1 constituents. The ground water protection standard shall be:

(1) For constituents for which a maximum contaminant level (MCL) has been promulgated under Section 1412 of the Safe Drinking Water Act (40 CFR Part 141), the MCL for that constituent;

(2) For constituents for which MCLs have not been promulgated, the background concentration, as approved by the director, for the constituent established from wells in accordance with subdivision A 3 a (1) of this subsection; or

(3) For constituents for which the background level is higher than the MCL identified under subdivision 3 h (1) of this subsection or health based levels identified under subdivision 3 i of this subsection, the background concentration as approved by the director.

i. The director may establish an alternative ground water protection standard for constituents for which MCLs have not been established by granting a variance based on the petition submitted by the owner or operator in accordance with 9 VAC 20-80-760.

C. Monitoring for CDD, Industrial, and Non-subtitle D Landfills

1. Applicability

a. Owners or operators of sanitary disposal facilities that have ceased to accept solid waste prior to the federally imposed deadlines shown in subsection C 2 in this section are eligible, with the director's approval, to conduct the state ground water monitoring program described in this section in lieu of the ground water monitoring program required under 9 VAC 20-80-300 B.

a. Owners or operators of ~~disposal facilities~~ CDD and industrial landfills not subject to the federal ground water monitoring requirements prescribed under 40 CFR Parts 257 and 258 will perform the ground water monitoring described in this section.

2. Deadlines for eligibility.

a. Sanitary landfills that stopped accepting waste before October 9, 1993, and in the case of a "small landfill" before April 9, 1994.

b. All other landfills other than sanitary landfills, including those that accepted hazardous waste from conditionally exempt small quantity generators after July 1, 1998.

3. Phase I monitoring program.

a. At a minimum, the owner or operator shall determine the concentration or value in ground water samples of the following parameters used as indicators of ground water contamination:

(1) Specific conductance;

(2) pH;

(3) Total Organic Carbon (TOC); and

(4) Total Organic Halogens (TOX).

b. ~~At least~~ During the first year of ground water monitoring, for each of the indicator parameters specified in subdivision 3 a of this subsection, obtain from each well an appropriate number of samples for the statistical test method selected for use from section D and establish the background level.

c. After the first year of monitoring, on at least a semi-annual basis, sample all monitoring wells, analyze the samples and evaluate groundwater quality.

d. Phase I Evaluation and Response.

(1) After the first year information has been collected for each well as specified in subdivision 3 a of this subsection, the owner or operator shall perform a statistical evaluation of the analytical results comparing each well to its own background and to the upgradient wells using any one of the statistical methods listed in section D, provided the test chosen meets the required performance standards. The Permittee shall submit this

information to the department in the Groundwater Annual Report described under subdivision E 1 b of this subsection.

(a) If the evaluation for the upgradient (background) well(s) shows a statistically significant increase(or pH decrease), the owner or operator shall submit this information to the department in the Groundwater Annual Report described under subdivision E 1 b of this subsection.

(b) If the evaluation of the downgrradient wells does not show a statistically significant increase (or pH decrease), the owner or operator shall submit this information in the Groundwater Annual Report described under subdivision E 1 b of this subsection and shall continue semi-annual monitoring for indicator parameters in accordance with the procedures in subsection 3.

(c) If the evaluation of the downgradient wells indicates a statistically significant increase (or pH decrease) over facility background or each well's background, the owner or operator shall provide written notice to the director, within 14 days of the date of the determination. The notice will indicate that the facility may be affecting groundwater quality and that a Phase II monitoring program will be implemented. The notice should also indicate if the facility will pursue an Alternate Source Demonstration under the provisions of subdivision 3 d (2) of this subsection.

(2) If the evaluation of the downgradient wells indicates a statistically significant increase (or pH decrease) over facility background, or each well's background, the owner or operator may demonstrate that a source other than the solid waste management unit caused the contamination or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in ground water quality. An Alternate Source Demonstration report documenting this finding shall be certified by a qualified ground water scientist and approved by the director. If a successful demonstration is made and approved, the owner or operator may continue Phase I monitoring. If a successful demonstration is not submitted to the director within 90 days of the determination of a statistically significant increase as required under the provisions of subdivision 3 d (1) of this subsection, the owner or operator shall initiate Phase II monitoring in accordance with the timeframes in subdivision 3 d (3) of this subsection. The director may approve a longer timeframe with appropriate justification.

(3) Within 90 days of determining any statistically significant increase (or pH decrease) required under the provisions of subdivision 3 d (1) of this subsection, the permittee shall establish a Phase II monitoring program meeting the requirements of subsection 4 of this part.

4. Phase II monitoring program.

a. A Phase II monitoring program shall include the semi-annual analysis for the monitoring parameters shown in Table 5.5 and if required under the provisions of subdivision 4 e 2 of this subsection, any detected Table 5.1 constituents.

b. Phase II First Determination.

(1) The owner or operator shall make a First Determination under subdivision 4 a of this subsection as soon as technically feasible but no later than ~~18~~ 21 months after determining a statistically significant increase (or pH decrease) under the provisions of subdivision 3 d (1) of this subsection. The number and frequency of groundwater sampling events shall be determined in accordance with the requirements of the statistical method selected, but will not exceed the 21 month timeframe outlined in this subsection. The First Determination will establish the facility background and obtain sufficient information from downgradient wells to perform a statistical evaluation using the procedures in section D.

(2) A written First Determination report containing an assessment of the ground water quality will be submitted to the department within the 21 month timeframe provided in subdivision 4 b (1) of this subsection.

(3) Based on the results of the First Determination:

(a) If no Table 5.5 constituents from the facility have entered the groundwater at statistically significant levels, the owner or operator shall reinstate the Phase I monitoring program with the director's approval and notify the department in the First Determination report.

(b) If a statistically significant increase in any Table 5.5 constituent is noted in the First Determination report, the owner or operator shall continue Phase II monitoring as described under subdivision 4 c of this subsection.

(c) Based on the results of the First Determination, the owner or operator may choose to submit, in addition to the First Determination Report, a demonstration that a source other than the unit caused the statistical exceedance, or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in ground water quality. An Alternate Source Demonstration report documenting this finding shall be certified by a qualified ground water scientist and approved by the director. If a successful demonstration is made and approved, the owner or operator may return to Phase I monitoring. If a successful demonstration is not made and approved within 90 days of submitting the First Determination Report under the provisions of subdivision 4 b (3) (b) of this subsection, the owner or operator shall initiate Phase II monitoring in accordance with the timeframes in subdivision 4 c of this subsection. The director may approve a longer timeframe with appropriate justification.

(4) If the owner or operator reinstates the Phase I monitoring and continues to find that one or more groundwater indicator parameters show statistically significant increases (or decrease in case of pH) during any semi-annual monitoring event, he shall proceed with the actions required under subsection 6 of this Part.

c. Phase II Development of Background.

(1) The owner or operator shall continue to sample and analyze groundwater on a semiannual basis within the Phase II monitoring program until the Phase III monitoring program is implemented (at the request of the applicant, the director may approve an appropriate set of monitoring wells applicable to this phase of monitoring);

(2) Within 90 days of submitting the First Determination report under the provisions of subdivision 4 b (2) of this subsection, sample the ground water in all monitoring wells and report the concentration of all detected constituents identified in Table 5.1.

(3) If no additional Table 5.1 constituents are detected, proceed with the procedure in subdivision 4 c (5) of this subsection.

(4) No later than 18 months after submitting the First Determination Report, establish a background value for each Table 5.1 constituent that has been detected at the waste management unit boundary.

(5) Within 19 months of submitting the First Determination report, submit to the department, a written report (Phase II Background Report) containing a summary of the background concentration data for each constituent detected in the groundwater during the Table 5.1 background sampling events.

d. Groundwater Protection Standards/Groundwater Monitoring Plan.

(1) No later than 60 days after submitting the Phase II background report required under the provisions of 4 c (5), The owner or operator shall propose a ground water protection standard for all Table 5.1 constituents. The proposed standards shall be submitted to the department in letter form and will be accompanied by all historical concentration data to justify the proposed concentration levels. The ground water protection standard shall be:

(a) For constituents for which a maximum contaminant level (MCL) has been promulgated under § 1412 of the Safe Drinking Water Act (40 CFR Part 141), the MCL for that constituent;

(b) For constituents for which MCLs have not been promulgated, the background concentration, as approved by the director, and established from the upgradient wells in accordance with 9 VAC 20-80-300 A 3 a (1); or

(c) For constituents for which the background level is higher than the MCL identified under subdivision 4 d (1)(a) of this subsection or health-based levels identified under subdivision 4 d (1)(d) of this subsection, the background concentration, as approved by the director under the provisions of a variance under 9 VAC 20-80-760.

(d) The director may establish an alternate concentration level as a ground water protection standard for any constituents for which MCLs have not been established or for which site specific background data is unavailable by granting a variance based on the petition submitted by the owner or operator. The owner or operator may request the use of an alternative concentration level as a groundwater protection standard by petitioning for a variance in accordance with 9 VAC 20-80-760 and 9 VAC 20-80-790.

(2) No later than 60 days after approval of groundwater protection standards, the owner or operator shall submit an updated Groundwater Monitoring Plan which details the site monitoring well network and sampling and analysis procedures undertaken during groundwater monitoring events. The director may waive the requirement for an updated plan if the Groundwater Monitoring Plan has recently been amended or is otherwise up-to-date.

(3) No later than 30 days after the approval of the Groundwater Monitoring Plan, the owner or operator shall request a permit amendment to incorporate the updated plan and related groundwater monitoring modules into the facility's permit in accordance with 9 VAC 20-80-620.

(4) If the 30 day timeframe specified in subdivision 4 d(3) of this subsection is exceeded, the director will modify the permit.

e. Phase II Evaluation and Response. After each subsequent monitoring event following establishment of groundwater protection standards, the concentration of Table 5.1 constituents found in the ground water at each monitoring well at the waste management unit boundary will be evaluated . The evaluation will be presented to the department in a semi-annual Phase II report. The evaluation of the concentration of Table 5.1 constituents and subsequent monitoring and reporting requirements will be as follows:

(1) If all Table 5.1 constituents are shown to be at or below background values, using the statistical procedures in section D, for two consecutive Table 5.1 sampling events, the owner or operator shall notify the director of this finding and may return to Phase I monitoring;

(2) If any Table 5.1 constituents are above background values, but all concentrations are below the established ground water protection standard, using the statistical procedures in section D, the owner or operator shall continue semi-annual Phase II monitoring of all Table 5.5 constituents and any detected Table 5.1 constituents;

(3) If one or more Table 5.1 constituents are above the established ground water protection standard using the statistical procedures in section D, the owner or operator shall notify the department within 14 days of this finding. The notification will include a statement that within 90 days the owner or operator will either:

(a) Submit a demonstration as allowed under the provision of subdivision 4 f of this subsection that a source other than the unit caused the statistical exceedance of the groundwater protection standards, or that an error in sampling, analysis, or evaluation was committed; or

(b) Complete the Nature and Extent Study as required under subdivision 4 g (1) of this subsection.

(4) If any detected Table 5.1 constituent is subsequently not detected for a period of two years, the owner or operator may petition the director to delete the constituent from the list of detected Table 5.1 constituents.

f. Alternate Source Demonstration.

(1) Within 90 days of the notification submitted under subdivision 4 e (3), the Owner or Operator shall, submit an Alternate Source Demonstration report to the department which demonstrates that a source other than the landfill unit caused the statistical exceedance, or that the exceedance resulted from error in sampling, analysis, or evaluation. The director may approve a longer timeframe for submittal of the Alternate Source Demonstration with appropriate justification.

(2) Until a decision has been rendered by the department in accordance with subdivision 4 f (3) of this subsection, the owner or operator will continue to monitor groundwater in accordance with the Phase II monitoring program.

(3) Based on the information submitted in accordance with subdivision 4 f (1) of this subsection, the director will:

(a) In case of the demonstrated error in sampling, analysis or evaluation, allow the owner or operator to resume Phase II monitoring program;

(b) In the case of a demonstrated alternate source for the release (i.e., off site source or natural variability in the aquifer matrix,) require changes in the ground water monitoring system which will correctly reflect the ground water conditions and allow the owner or operator to remain in Phase II monitoring program. Any required changes to the monitoring system shall be completed prior to the next regularly scheduled Phase II groundwater monitoring event. Any modifications to the monitoring system must be submitted to the department as an application for a permit amendment under 9 VAC 20-80-620 within 90 days of the approval of the alternate source demonstration;

c) In the case of an unsuccessful Alternate Source Demonstration, require the owner or operator to commence actions under subdivision 4 g of this subsection concerning corrective action.

g. Corrective Action.

(1) Within 90 days of the notification submitted under subdivision 4 e (3), or as directed under subdivision 4 f (3)(c), submit a Nature and Extent Study in an effort to delineate the physical extent of the release from the waste management unit.

(2) Within 180 days of the notification submitted under subdivision 4 e (3), or 90 days of submitting the Nature and Extent Study under subdivision 4 g (1), complete the following based on the results of the Nature and Extent Study:

(a) An Assessment of Corrective Measures as defined under 9 VAC 20-80-310 A 3; or

(b) A Proposal for Presumptive Remedies as defined in 9 VAC 20-80-310 A 4.

~~b.~~ (3) Within 270 days of the notification submitted under subdivision 4 e (3) or 180 days of completing actions under subdivision 4 g (2), submit a proposed Corrective Action Plan in accordance with the procedures of 9 VAC 20-80-310B.

5. Phase III Monitoring program.

a. The purpose of the Phase III monitoring program is to support the corrective action undertaken in accordance with 9 VAC 20-80-310. A Phase III monitoring program shall be initiated at the same time the Corrective Action Plan is implemented

b. Phase III monitoring shall continue until it is demonstrated that Table 5.1 constituents have not exceeded the ground water protection standards during any sampling event for a period of three consecutive years using the appropriate statistical procedures in section D and performance standards from the facility's permit.

(1) If the post-closure period has not been completed following the three year period, Phase II monitoring will be implemented.

(2) If the owner or operator is engaged in a corrective action program or a presumptive remedy at the end of the minimum post-closure period, the post-closure period is extended until the owner or operator provides the demonstration required under subdivision 5 b of this subsection.

c. Phase III monitoring parameters and constituents shall include those constituents listed in Table 5.1 that are determined to be present at detected concentrations at the waste management unit boundary.

d. The sampling frequency will be determined by the director on a site specific basis. An appropriate set of monitoring wells will be included in the determination as necessary. The following minimum frequencies apply:

(1) Semi-annually for those constituents in Table 5.1 that have been detected in ground water.

(2) Annually for all Table 5.1 constituents unless it is demonstrated that the history of analyses of leachate from the unit indicates that these historically non-detected constituents are not present.

e. Phase III Evaluation and Response.

(1) If the owner or operator determines that there is a statistically significant exceedance over established groundwater protection standards for any Table 5.1 constituent at any monitoring well at the waste management unit boundary, he shall:

(a) Within 14 days of the exceedance, notify the department of this finding in writing. The notification shall indicate what constituents have shown statistically significant increases.

(b) Within 90 days of determining an exceedance, submit to the department the following information:

(i) An evaluation of the concentration of any Table 5.1 constituents found in ground water at each monitoring well or an approved subset of wells at the compliance point;

(ii) Any proposed changes to the ground water monitoring system necessary to meet the requirements of corrective action programs in accordance with 9 VAC 20-80-310; and

(iii) Any proposed changes to the monitoring frequency or sampling procedures used at the facility necessary to meet the requirements of corrective action programs in accordance with 9 VAC 20-80-310.

(c) Within 180 days of determining an exceedance, submit to the department:

(a) All data necessary to justify any variance sought from the corrective active program; or

(b) A change to the Corrective Action Plan in accordance with 9 VAC 20-80-310 necessary to meet the requirements of the plan specified in these regulations.

6. Modified Sampling Program.

a. If the owner or operator reinstates the Phase I monitoring based on the results of the First Determination Report, but continues to find that one or more groundwater indicator parameters show statistically significant increases (or decreases in the case of pH) during semi-annual monitoring, he shall, within 90 days of noting the increase (or decrease), sample all monitoring wells for the Table 5.1 list of constituents.

b. Based on the results of the Table 5.1 sampling event:

(1) If no Table 5.5 constituents have been detected at statistically significant levels and no additional Table 5.1 constituents that are not in Table 5.5 are detected in the groundwater, the owner or operator shall monitor groundwater under the modified sampling program of this subsection which entails sampling for and analyzing Phase I parameters on a semi-annual basis and Table 5.1 constituents every two years (during the first half of each even numbered calendar year). Full Phase II monitoring shall not be required until such time as one or more Table 5.1 constituents are detected during the biennial sampling event.

(2) If one or more Table 5.1 constituents are detected, the owner or operator shall commence with actions under subdivision 4 c regarding Phase II monitoring and determination of background.

D. Statistical Methods and Constituent Lists

1. **Acceptable Test Methods**. The following statistical test methods may be used to evaluate groundwater monitoring data:

a. A *parametric analysis of variance* (ANOVA) followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's mean and the background mean levels for each constituent.

b. An *analysis of variance* (ANOVA) *based on ranks* followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's median and the background median levels for each constituent.

c. A *tolerance or prediction interval procedure* in which an interval for each constituent is established from the distribution of the background data, and the level of each constituent in each compliance well is compared to the upper tolerance or prediction limit.

d. A *control chart approach* that gives control limits for each constituent.

e. Another statistical test method that meets the performance standards specified below. Based on the justification submitted to the Department, the Director may approve the use of an alternative test. The justification must demonstrate that the alternative method meets the performance standards shown below.

2. **Performance Standards.** Any statistical method chosen by the owner or operator shall comply with the following performance standards, as appropriate:

a. The statistical method used to evaluate groundwater monitoring data shall be appropriate for the distribution of monitoring parameters or constituents. If the distribution is shown by the owner or operator to be inappropriate for a normal theory test, then the data should be transformed or a distribution-free theory test should be used. If the distributions for the constituents differ, more than one statistical method may be needed.

b. If an individual well comparison procedure is used to compare an individual compliance well constituent concentration with background constituent concentrations or a groundwater protection standard, the test shall be done at a Type I error level no less than 0.01 for each testing period. If a multiple comparisons procedure is used, the Type I experiment-wise error rate for each testing period shall be no less than 0.05; however, the Type I error of no less than 0.01 for individual well comparisons must be maintained. This performance standard does not apply to tolerance intervals, prediction intervals, or control charts.

c. If a control chart approach is used to evaluate groundwater monitoring data, the specific type of control chart and its associated parameter values shall be protective of human health and the environment. The parameters shall be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern.

d. If a tolerance interval or a predictional interval is used to evaluate groundwater monitoring data, the levels of confidence and, for tolerance intervals, the percentage of the population that the interval must contain, shall be protective of human health and the environment. These parameters shall be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern.

e. The statistical method shall account for data below the limit of detection with one or more statistical procedures that are protective of human health and the environment. Any practical quantitation limit (PQL) that is used in the statistical method shall be the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility.

f. If necessary, the statistical method shall include procedures to control or correct for seasonal and spatial variability as well as temporal correlation in the data.

TABLE 5.1

Groundwater Monitoring List

Common Name [1]	CAS RN [2]	Chemical Abstracts Service Index Name [3]
Acenaphthene	83-32-9	Acenaphthylene, 1,2-dihydro
Acenaphthytene	208-96-8	Acenaphthylene-
Acetone	67-64-1	2-Propenone
Acetonitrile; Methyl cyanide	75-05-8	Acetonitrile
Acetophenone	98-86-2	Ethanone, 1-phenyl-
2-Acetylaminofluorene; 2-AAF	53-96-3	Acetamide, N-9H-fluoren-2-yl
Acrolein	107-02-8	2-Propenal
Acrylonitrile	107-13-1	2-Propenenitrile
Aldrin	309-00-2	1,4:5,8- Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro- 1,4,4a,5,8,aa-hexahydro-(1α,4α,4αβ,5α,8α,8αβ)-
Allyl chloride	107-05-1	1-Propene, 3-chloro
4-Aminobiphenyl	92-67-1	[1,11-Biphenyl-4-amine
Anthracene	120-12-7	Anthracene
Antimony	(Total)	Antimony
Arsenic	(Total)	Arsenic
Barium	(Total)	Barium
Benzene	71-43-2	Benzene
Benzo[a]anthracene; Benzanthracene	56-55-3	Benz[a]anthracene
Benzo[b]fluoranthene	205-99-2	Benz[e]acephanthrylene
Benzo[k]fluoranthene	207-08-9	Benzo[k]fluorenthene
Benzo[ghi]perylene	191-24-2	Benzo[ghi]perylene
Benzo[a]pyrene	50-32-8	Benzo[a]pyrene
Benzyl alcohol	100-51-6	Benzenemethanol
Beryllium	(Total)	Beryllium

alpha-BHC	319-84-6	Cyclohexane, 1,2,3,4,5,6- hexachloro-, (1α,2α,3β,4α,5β,6β,)-
beta-BHC	319-85-7	Cyclohexane, 1,2,3,4,5,6- hexachloro-, (1α,2β,3α,4β,5α,6β,)-
delta-BHC	319-86-8	Cyclohexane, 1,2,3,4,5,6- hexachloro-, (1α,2α,3α,4β,5α,6β,)-
gamma-BHC; Lindane	58-89-9	Cyclohexane, 1,2,3,4,5,6- hexachloro-, (1α,2α,3β,4α,5α,6β,)-
Bis(2-chloroethoxy)methane	111-91-1	Ethane,1,1'-[methylenebis(oxy)]bis[2-chloro-
Bis(2-chloroethyl) ether; Dichloroethyl ether	111-44-4	Ethane, 1,1'-oxybis[2-chloro-
Bis(2-chloro-1-methylethyl) ether; 2, 2'-Dichlorodiisopropyl ether; DCIP	108-60-1 See note [4]	Propane, 2,2'-oxybis(1-chloro-
Bis(2-ethylhexyl)phthalate	117-81-7	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester
Bromochloromethane;.Chlorobromomethane	74-97-5	Methane, bromochloro
Bromodichloromethane;.Dibromochloromethane	75-27-4	Methane, bromodichloro
Bromoform; Tribromomethane	75-25-2	Methane, tribromo
4-Bromophenyl phenyl ether	101-55-3	Benzene, 1-bromo-4-phenoxy
Butyl benzyl phthalate; Benzyl butyl phthalate	85-68-7	1,2-Benzenedicarboxylic acid, butyl phenylmethyl ester
Cadium	(Total)	Cadium
Carbon disulfide	75-15-0	Carbon disulfide
Carbon tetrachloride	56-23-5	Methane, tetrachloro
Chlordane	Note [5]	4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-
p-Chloroaniline	106-47-8	Benzenamine, 4-chloro
Chlorobenzene	108-90-7	Benzene, chloro
Chlorobenzilate	510-15-6	Benzeneacetic acid, 4-chloro-α-(4-chlorophenyl)-α-hydroxy-, ethyl ester
p-Chloro-m-cresol; 4-Chloro-3-methylphenol	59-50-7	Phenol, 4-chloro- 3-methyl-

Chloroethane; Ethyl chloride	75-00-3	Ethane, chloro-
Chloroform; Trichloromethane	67-66-3	Methane, trichloro-
2-Chloronaphthalene	91-58-7	Naphthalene, 2-chloro
2-Chlorophenol	95-57-8	Phenol, 2-chloro
4-Chlorophenyl phenyl ether	7005-72-3	Benzene, 1-chloro-4-phenoxy
Chloroprene	126-99-8	1,3-Butadiene, 2-chloro
Chromium	(Total)	Chromium
Chrysene	218-01-9	Chrysene
Colbalt	(Total)	Colbalt
Copper	(Total)	Copper
m-Cresol; 3-methyphenol	108-39-4	Phenol, 3-methyl
o-Cresol; 2-methyphenol	95-48-7	Phenol, 2-methyl
p-Cresol; 4-methyphenol	106-44-5	Phenol, 4-methyl
Cyanide	57-12-5	Cyanide
2,4-D; 2,4-Dichlorophenoxyacetic acid	94-75-7	Acetic acid, (2,4-dichlorophenoxy)-
4,4'-DDD	72-54-8	Benzene, 1,1'-(2,2- dichloroethylidene)bis[4-chloro-
4,4'-DDE	72-55-9	Benzene, 1,1'-(dichloroethylidene)bis[4-chloro-
4,41-DDT	50-29-3	Benzene, 1'1-(2,2,2-trichloroethylidene)bis[4-chloro
Dibenz[a,h]anthracene	53-70-3	Dibenz[a,h]anthracene
Dibenzofuran	132-64-9	Dibenzofuran
Dibromochloromethane; Chlorodibromomethane	124-48-1	Methane, dibromochloro
1,2-Dibromo-3-chloropropane; DBCP	96-12-8	Propane, 1,2-dibromo-3-chloro
1,2-Dibrimoethane; Ethylene dibromide; EDB	106-93-4	Ethane, 2,3-dibromo
Di-n-butyl phthalate	84-74-2	1,2-Benzenedicarboxylic acid, dibutyl ester
o-Dichlorobenzene; 1,2-Dichlorobenzene	95-50-1	Benzene, 1,2-dichloro-
m-Dichlorobenzene; 1,3-Dichlorobenzene	541-73-1	Benzene, 1,3-dichloro-
p-Dichlorobenzene; 1,4-Dichlorobenzene	106-46-7	Benzene, 1,4-dichloro
3,3'-Dichlorobenzidine	91-94-2	1,1'-Biphenyl-4,4'diamine, 3,3'-dichloro
trans-1,4-Dichloro-2-butene	110-57-6	2-Butene, 1,4-dichloro-,(E)-

Dichlorodifluoromethane; CFC 12;	75-71-8	Methane, dichlorodifluoro
1.1-Dichloroethane; Ethylidene chloride	75-34-3	Ethane,1,1-dichloro
1,2-Dichloroethane; Ethylene dichloride	107-06-2	Ethane, 1,2-dichloro
1,1-Dichloroethylene; 1,1-Dichloroethene; Vinylidene chloride	75-35-4	Ethane, 1,1-dichloro-
cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene	156-59-2	Ethene, 1,2-dichloro-, (Z)
trans-1,2-Dichloroethylene trans-1,2-Dichroroethene	156-60-5	Ethene, 1,2-dichloro-,(E)
2,4-Dichlorophenol	120-83-2	Phenol, 2,4-dichloro
2,6-Dichlorophenol	87-65-0	Phenol, 2,6-dichloro
1,2-Dichloropropane; Propylene dichloride	78-87-5	Propane, 1,2-dichloro
1,3-Dichloropropane; Trimethylene dichloride	142-28-9	Propane, 1,3-dichloro
2, 2-Dichloropropane; isopropylidene chloride	594-20-7	Propane, 2,2-dichloro
1,1-Dichloropropene	563-58-6	1-Propene, 1,1-dichloro
cis-1,3-Dichloropropene	10061-01-5	1-Propene, 1,3-dichloro-,(Z)
trans-1,3-Dichloropropene	10061-02-6	1-Propene, 1,3-dichloro-,(E)
Dieldrin	60-57-1	2,7:3,6-Dimethanonaphth[2,3-bioxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-(1aα,2β,2aα,3β,6β,6aα,7β,7aα)-
Diethyl phthalate	84-66-2	1,2- Benzenedicarboxylic acid, diethyl ester
O,O-Diethyl O-2-pyrazinyl phosphorothioate; Thionazin	297-97-2	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester
Dimethoate	60-51-5	Phosphorodithioic acid, O,O-dimethyl-S-[2-(methylamino)-2-oxoethyl] ester
p-(Dimethylamino)azobenzene	60-11-7	Benzenamine, N,N-dimethyl-4-(phenylazo)-
7,12-Dimethylbenz[a]anthracene	57-97-6	Benz[a]anthracene, 7,12-dimethyl
3,3’-Dimethylbenzidine	119-93-7	[1,1’-Biphenyl]-4,4’-diamine, 3,3’-dimethyl
2,4-Dimethylphenol; m-Xylenol	105-67-9	Phenol, 2,4-dimethyl
Dimethyl phthalate	131-11-3	1,2-Benzenedicarboxylic acid, dimethyl ester

m-Dinitrobenzene	99-65-0	Benzene, 1,3-dinitro
4,6-Dinitro-o-cresol 4,6-Dinitro-2-methylphenol	534-52-1	Phenol, 2-methyl-4,6-dinitro-
2,4-Dinitrophenol	51-28-5	Phenol, 2,4-dinitro
2,4-Dinitrotoluene	121-14-2	Benzene, 1-methyl-2,4-dinitro
2,6-Dinitrotoluene	606-20-2	Benzene, 2-methyl-1,3-dinitro
Dinoseb; DNBP; 2-sec-Butyl-4,6-dinitrophenol	86-85-7	Phenol, 2-(1-methylpropyl)-4,6-dinitro
Di-n-octyl phthalate	117-84-0	1,2-Benzenedicarboxylic acid, dioctyl ester
Diphenylamine	122-39-4	Benzenamine, M-phenyl
Disulfoton	298-04-4	Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl] ester
Endosulfan I	959-96-8	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide
Endosulfan II	33213-65-9	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5s,6,9,9a-hexahydro-, 3-oxide, (3a,5aα,6β,9β,9aα)-
Endosulfan sulfate	1031-07-8	6,9-Methano-2,4,3- banzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-,3,3-dioxide
Endrin	72-20-8	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2*,3,6,6a,7,7a-octahydro-, (1aα,2β,2aβ,3a,6α,6aβ,7β,7aα)-
Endrin aldehyde	7421-93-4	1,2,4-Methenocyclopentacdpentalene-5-carboxaldehyde, 2,2a,3,3,4,7-hexachlorodecahydro-, (1α,2β,2aβ,4β,4aβ,5β,6aβ,6bβ,7R*)-
Ethylbenzene	100-41-4	Benzene,ethyl
Ethyl methacrylate	97-63-2	2-Propenoic acid, 2-methyl-, ethyl ester

Ethylmethanesulfonate	62-50-0	Methanesulfonic acid, ethyl ester
Famphur	52-85-7	Phosphorothioic acid, O-[4-[(dimethylamino)sulfonyl] phenyl] O,O-dimethyl ester
Fluoranthene	206-44-0	Fluoranthene
Fluorene	86-73-7	9H-Fluorene
Heptachlor	76-44-8	4,7-Methano-1H-indene,1,4,5,6,7,8,8-heptachlor-3a,4,7,7a-tetrahydro
Heptachlor epoxide	1024-57-3	2,5-Methano-2H-indeno[1,2-b]oxirene,2,3,4,5,6,7,7-heptachloro-1a,1b,5,5a,6,6a-hexahydro-, (1aα,1bβ,2α,5α,5aβ,6,6aα)
Hexachlorobenzene	118-74-1	Benzene, hexachloro
Hexachlorobutadiene	87-68-3	1,3-Butadiene, 1,1,2,3,4,4-hexachloro
Hexachlorocyclopentadiene	77-47-4	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro
Hexachloroethane	67-72-1	Ethane, hexachloro
Hexachloropropene	1888-71-7	1-Propene,1,1,2,3,3,3-hexachloro-
2-Hexanone; Methyl butyl ketone	591-78-6	2-Hexanone
Indeno[1,2,3-cd]pyrene	193-39-5	Indeno[1,2,3-cd]pyrene
Isobutyl alcohol	78-83-1	1-Propanol, 2-methyl
Isodrin	465-73-6	1,4,5,8-Dimethanonaphthalene 1,2,3,4,10,10 hexachloro-1,4,4a,5,8,8a hexahydro(1α,4α,4aβ,5β,8β,8aβ)-
Isophorone	78-59-1	2-Cyclohexen-1-one,3,5,5-trimethyl
Isosafrole	120-58-1	1,3- Benzodioxole, 5-(1-propenyl)
Kepone	143-50-0	1,3,4-Metheno-2H-cyclobuta[cd]pentalen-2-one 1,1a,3,3a,4,5,5,5a,5b,6-decachlorooctahydro-
Lead	(Total)	Lead
Mercury	(Total)	Mercury

Methacrylonitrile	126-98-7	2-Propenenitrile, 2-methyl
Methapyrilene	91-80-5	1,2- Ethanedimine, N,N-dimethyl-N'- 2-pyridinyi-N'2-thianylmethyl
Methoxychlor	72-43-5	Benzene, 1,1'(2,2,2,trichloroethylidene)bis[4-methoxy-
Methyl bromide; Bromomethane	74-83-9	Methane, bromo-
Methyl chloride; Chloromethane	74-87-3	Methane, chloro-
3-Methylcholanthrene	56-49-5	Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-
Methyl ethyl ketone; MEK; 2-Butanone	78-93-3	2-Butanone
Methyl iodide; Iodomethane	74-88-4	Methane, iodo-
Methyl methacrylate	80-62-6	2-Propenoic acid, 2-methyl-, methyl ester
Methyl methanesulfonate	66-27-3	Methanesulfonic acid, methyl ester
2-Methylnaphthalene	91-57-6	Naphthalene, 2-methyl
Methyl parathion; Parathion methyl methyl	298-00-0	Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl) ester
4-Methyl-2-pentanone; Methyl isobutyl ketone	108-10-1	2-Pentanone, 4-methyl-
Methylene bromide; Dibromomethane	74-95-3	Methane, dibromo-
Methylene chloride; Dichloromethane	75-09-2	Methane, dichloro
Naphthalene	91-20-3	Naphthalene
1,4-Naphthoquinone	130-15-4	1,4-Naphthalenedione
1- Naphthylamine	134-32-7	1-Naphthalenamine
2-Napthylamine	91-59-8	2-Naphthalenamine
Nickel	(Total)	Nickel
o-Nitroaniline; 2-Nitroaniline	88-74-4	Benzenamine, 2-nitro-
m-Nitroaniline; 3-Nitroaniline	99-09-2	Benzenamine, 3-nitro-
p-Nitroaniline; 4-Nitroaniline	100-01-6	Benzenamine, 4-nitro-
Nitrobenzene	98-95-3	Benzene, nitro-
o-Nitrophenol; 2-Nitrophenol	88-75-5	Phenol, 2-nitro-
p-Nitrophenol; 4-Nitrophenol	100-02-7	Phenol, 4-nitro-

N-Nitrosodi-n-butylamine	924-16-3	1-Butenamine, N-butyl-N-nitroso
N-Nitrosodiethylamine	55-18-5	Ethanamine, N-ethyl-N-nitroso
N-Nitrosodimethylamine	62-75-9	Methanamine, N-methyl-N-nitroso
N-Nitrosodiphenylamine	86-30-6	Benzenamine, N-nitroso-N-phenyl
N-Nitrosodipropylamine; N-Nitroso-N-dipropylamine; Di-n-propylnitrosamine	621-64-7	1-Propanamine, N-nitroso-N-propyl
N-Nitrosamethylethylamine	10595-95-6	Ethanamine, N-methyl-N-nitroso
N-Nitrosopiperidine	100-75-4	Piperidine, 1-nitroso
N-Nitrosopyrrolidine	930-55-2	Pyrrolidine, 1-nitroso
5-Nitro-o-toluidine	99-55-8	Benzenamine, 2- methyl-5-nitro
Parathion	56-38-2	Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester
Pentachlorobenzene	608-93-5	Benzene, pentachloro
Pentachloronitrobenzene	82-68-8	Benzene, pentachloronitro-
Pentachlorophenol	87-86-5	Phenol, pentachloro
Phenacetin	62-44-2	Acetamide, N-4(ethoxyphenyl)
Phenanthrene	85-01-8	Phenanthrene
Phenol	108-95-2	Phenol
p-Phenylenediamine	106-50-3	1,4-Benzenediamine
Phorate	298-02-2	Phosphorodithioic acid, O,O-diethyl-S-[(ethylthio)methyl] ester
Polychlorinated biphenyls; PCBS; Aroclors	Note [6]	1,1'-Biphenyl, chloro derivatives
Pronamide	23950-58-5	Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-
Propionitrile; Ethyl cyanide	107-12-0	Propanenitrile
Pyrene	129-00-0	Pyrene
Safrole	94-59-7	1,3-Benzodioxole, 5-(2-propenyl)
Selenium	(Total)	Selenium
Silver	(Total)	Silver

Silvex; 2,4,5-TP	93-72-1	Propanoic acid, 2-(2,4,5-trichlorophenoxy)
Styrene	100-42-5	Benzene, ethenyl
Sulfide	18496-25-8	Sulfide
2,4,5-T; 2,4,5-Trichlorophenoxyacetic acid	93-76-5	Acetic acid, (2,4,5-trichlorophenoxy)
1,2,4,5-Tetrachlorobenzene	95-94-3	Benzene, 1,2,4,5-tetrachloro
1,1,1,2-Tetrachloroethane	630-20-6	Ethane, 1,1,1,2-tetrachloro
1,1,2,2-Tetrachloroethane	79-34-5	Ethane, 1,1,2,2-tetrachloro
Tetrachloroethylene; Tetrachloroethene; Perchloroethylene	127-18-4	Ethene, tetrachloro
2,3,4,6-Tetrachlorophenol	58-90-2	Phenol, 2,3,4,6-tetrachloro
Thallium	(Total)	Thallium
Tin	(Total)	Tin
Toluene	108-88-3	Benzene, methyl-
o-Toluidine	95-53-4	Benzenamine, 2-methyl
Toxaphene	Note [9]	Toxaphene
1,2,4-Trichlorobenzene	120-82-1	Benzene, 1,2,4-trichloro
1,1,1-Trichloroethane; Methychloroform	71-55-6	Ethane, 1,1,1-trichloro-
1,1,2-Trichloroethane	79-00-5	Ethane, 1,1,2-trichloro-
Trichloroethylene; Trichloroethene ethene	79-01-6	Ethane, trichloro
Trichlorofluoromethane; CFC-11	75-69-4	Methane, trichlorofluoro
2,4,5-Trichlorophenol	95-95-4	Phenol, 2,4,5-trichloro
2,4,6-Trichlorophenol	88-06-2	Phenol, 2,4,6-trichloro
1,2,3-Trichloropropane	96-18-4	Propane, 1,2,3-trichloro
O,O,O-Triethyl phosphorothioate	126-68-1	Phosphorothioic acid, O,O,O-triethylester
sym-Trinitrobenzene	99-35-4	Benzene, 1,3,5-trinitro
Vanadium	(Total)	Vanadium
Vinyl acetate	108-05-4	Acetic acid, ethenyl ester
Vinyl chloride; Chloroethene	75-01-4	Ethene, chloro

Xylene(total)	Note [8]	Benzene, dimethyl
Zinc	(Total)	Zinc

NOTES:

1. Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

2. Chemical Abstracts Service Registry Number. Where “Total” is entered, all species in the ground water that contains this element are included.

3. CAS index names are those used in the 9th Collective Index.

4. This substance is often called Bis(2-chloroisopropyl) ether, the name Chemical Abstracts Service applies to its noncommercial isomer, Propane, 2.2’-oxybis2-chloro (CAS RN 39638-32-9).

5. Chlordane: This entry includes alpha-chlordane (CAS RN 5103-71-9), beta-chlordane (CAS RN 5103-74-2), gamma-chlordane (CAS RN 5566-34-7), and constituents of chlordane (CAS RN 57-74-9 and CAS RN 12739-03-6).

6. Polychlorinated biphenyls (CAS RN 1336-36-3); this category contains congener chemicals, including constituents of Aroclor 1016 (CAS RN 12674-11-2), Aroclor 1221 (CAS RN 11104-28-2), Aroclor 1232 (CAS RN 11141-16-5), Aroclor 1242 (CAS RN 53469-21-9), Aroclor 1248 (CAS RN 12672-29-6), Aroclor 1254 (CAS RN 11097-69-1), and Arclor 1260 (CAS RN 11096-82-5).

7. Toxaphene: This entry includes congener chemicals contained in technical toxaphene (CAS RN 8001-35-2), i.e., chlorinated camphene.

8. Xylene (total): This entry includes o-xylene (CAS RN 96-47-6), m-xylene (CAS RN 108-38-3), p-xylene (CAS RN 106-42-3), and unspecified xylenes (dimethylbenzenes) (CAS RN 1330-20-7).

~~APPENDIX 5.2 (Repealed.)~~

~~APPENDIX 5.3 (Repealed.)~~

TABLE 5.5

Groundwater Monitoring List

Common Name[1]	CAS RN[2]
Inorganic Constituents	
1) Antimony.....	(Total)
2) Arsenic.....	(Total)
3) Barium.....	(Total)
4) Beryllium.....	(Total)
5) Cadmium.....	(Total)
6) Chromium.....	(Total)
7) Cobalt.....	(Total)
8) Copper.....	(Total)
9) Lead.....	(Total)
10) Nickel.....	(Total)
11) Selenium.....	(Total)
12) Silver.....	(Total)
13) Thallium.....	(Total)
14) Vanadium.....	(Total)
15) Zinc.....	(Total)
Organic Constituents	
16) Acetone.....	67-64-1
17) Acrylonitrile.....	107-13-1
18) Benzene.....	71-43-2
19) Bromochloromethane.....	74-97-5
20) Bromodichloromethane.....	75-27-4
21) Bromoform; Tribromomethane.....	75-25-2
22) Carbon disulfide.....	75-15-0
23) Carbon tetrachloride.....	56-23-5
24) Chlorobenzene.....	108-90-7

25) Chloroethane; Ethyl chloride.....	75-00-3
26) Chloroform; Trichloromethane.....	67-66-3
27) Dibromochloromethane; Chlorodibromomethane.....	124-48-1
28) 1,2-Dibromo-3-chloropropane;DBCP.....	96-12-8
29) 1,2-Dibromoethane; Ethylene dibromide; EDB.....	106-93-4
30) o-Dichlorobenzene; 1,2-Dichlorobenzene...	95-50-1
31) p-Dichlorobenzene; 1,4-Dichlorobenzene...	106-46-7
32) trans-1,4-Dichloro-2-butene.....	110-57-6
33) 1,1-Dichloroethane; Ethylidene chloride.....	75-34-3
34) 1,2-Dichloroethane; Ethylene dichloride.....	107-06-2
35) 1,1-Dichloroethylene; 1,1-Dichloroethene; Vinylidene chloride	75-35-4
36) cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene.....	156-59-2
37) trans-1,2-Dichloroethylene; trans-1,2-Dichloroethene....	156-60-5
38) 1,2-Dichloropropane; Propylene dichloride.	78-87-5
39) cis-1,3-Dichloropropene.....	10061-01-5
40) trans-1,3-Dichloropropene.....	10061-02-6
41) Ethylbenzene.....	100-41-4
42) 2-Hexanone; Methyl butyl ketone.....	591-78-6
43) Methyl bromide; Bromomethane.....	74-83-9
44) Methyl chloride; Chloromethane.....	74-87-3
45) Methylene bromide; Dibromomethane.....	74-95-3
46) Methylene chloride; Dichloromethane.....	75-09-2
47) Methyl ethyl ketone; MEK; 2-Butanone.....	78-93-3
48) Methyl iodide; Iodomethane.....	74-88-4
49) 4-Methyl-2 pentanone; Methyl isobutyl ketone.....	108-10-1
50) Styrene.....	100-42-5
51) 1,1,1,2-Tetrachloroethane.....	630-20-6
52) 1,1,2,2-Tetrachloroethane.....	79-34-5
53) Tetrachloroethylene; Tetrachloroethene; Perchloroethylene	127-18-4

54) Toluene.....	108-88-3
55) 1,1,1-Trichloroethane; Methylchloroform....	71-55-6
56) 1,1,2-Trichloroethane.....	79-00-5
57) Trichloroethylene; Trichloroethene.....	79-01-6
58) Trichlorofluoromethane; CFC-11.....	75-69-4
59) 1,2,3-Trichloropropane.....	96-18-4
60) Vinyl acetate.....	108-05-4
61) Vinyl chloride.....	75-01-4
62) Xylenes.....	Note [3]

NOTES:

1. Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

2. Chemical Abstracts Service registry number. Where “Total” is entered, all species in the ground water that contain this element are included.

3. Xylene (total): This entry includes o-xylene (CAS RN 96-47-6), m-xylene (CAS RN 108-38-3), p-xylene (CAS RN 106-42-3), and unspecified xylenes (dimethylbenzenes) (CAS RN 1330-20-7).

This list contains 47 volatile organics for which possible analytical procedures provided in EPA Report SW-846 “Test Methods for Evaluating Solid Waste,” third edition, November 1986, as revised December 1987, include Method 8260; and 15 metals for which SW-846 provides either Method 6010 or a method from the 7000 series of methods.

E. Recordkeeping and Reporting

1. Recordkeeping Requirements. Records pertaining to groundwater monitoring activities on site shall be retained at a specified location by the owner/operator throughout the active life and post closure care period of the facility, and shall include at a minimum:

a. All historical groundwater surface elevation data measurements;

b. All historical laboratory analytical results for groundwater sampling events required under the Detection, Assessment, Phase I, Phase II, Phase III, or modified Programs as described in this section;

c. All records of well installation, repair, or abandonment actions;

d. All Department correspondence to the facility; and

e. All approved Variances, well subsets, wetlands or other such Department approvals.

2. Reporting Requirements

a. During the first year when initial background concentrations are being established for the facility: concentrations or values of the parameters for each ground water monitoring well within 15 days after completing each analysis. During background determination under the Phase I monitoring program and during the First Determination period of the Phase II monitoring program, the owner/operator shall submit to the department the groundwater analytical results from each background event within 15 days of receipt from the laboratory.

b. Annual report requirements

(1) An Annual Groundwater Monitoring Report shall be submitted by the owner/operator and shall, at a minimum, contain the technical items listed below:

(a) Landfill name, location - (keyed to a USGS topographic map,) and permit number;

(b) Summary of site history;

(c) Physical setting description;

(d) Description of uppermost aquifer & well network;

(e) History of groundwater monitoring activity on site;

(f) Review of past Variances or other department approvals;

(g) Statement noting that the monitoring well network meets the requirements of 9 VAC 20-80-300 A 3;

(e) Listing of the groundwater sampling events undertaken during the previous calendar year; and

(f) Evaluations of the, and appropriate responses to:

(i) Groundwater elevation data (illustrated on a potentiometric surface map);

(ii) Groundwater flow rate;

(iii) Groundwater flow direction; and

(iv) Groundwater analytical data.

(2) The Annual Report shall be submitted to the Director no later than March 1st, of each calendar year and shall by accompanied by a signature page, and a completed form ARSC-01.

c. During the first year when initial background concentrations are being established for the facility: concentrations or values of the parameters for each ground water monitoring well within 15 days after completing each analysis. During background determination under the Phase I monitoring program and during the First Determination period of the Phase II monitoring program, the owner/operator shall submit to the department the groundwater analytical results from each background event within 15 days of receipt from the laboratory.

d. Submission of a First Determination Report, Alternate Source Demonstration, Nature and Extent Study, Assessment of Corrective Measures, Corrective Action Plan, or other such report type as may be required under this Section, shall meet the timeframe requirements listed previously in this section.

9 VAC 20-80-310. Corrective action program.

A corrective action program is required whenever the ground water protection standard is exceeded. An owner or operator of a facility may elect to initiate the corrective action program at any time; however, prior to such initiation, he shall determine appropriate ground water protection standards for all ~~Appendix~~ Table 5.1 constituents.

A. Assessment of corrective measures /proposal for presumptive remedy.

1. Within 90 days of finding that any of the constituents listed in ~~Appendix~~ Table 5.1 have statistically exceeded the ground water protection standards, the owner or operator shall initiate an assessment of corrective measures or a proposal for presumptive remedies. The assessment of corrective measures, or the proposal for presumptive remedies shall be completed within 180 days from the date the constituents have been detected. The 180-day period may be extended by the director for good cause.

2. A corrective action monitoring program shall comply with the ground water monitoring requirements of ~~9 VAC 20-80-250 D 6, 9 VAC 20-80-260 D 5, or 9 VAC 20-80-270 D 5~~, 9 VAC 20-80-300 as applicable. Additional monitoring shall be implemented as necessary to:

a. Determine areal extent of any plume of contamination for each constituent under the ground water protection standard that has been measured at concentrations that exceed background levels; and

b. Demonstrate the effectiveness of the corrective action program.

3. Assessment of corrective measures.

a. The assessment shall include an analysis of the effectiveness of potential corrective measures in meeting all of the requirements and objectives of the remedy as described under this subsection, addressing at least the following:

(1) The performance, reliability, ease of implementation, and potential impacts of appropriate potential remedies, including safety impacts, cross-media impacts, and control of exposure to any residual contamination;

(2) The time required to begin and complete the remedy;

(3) The costs of remedy implementation; and

(4) The institutional requirements such as state or local permit requirements or other environmental or public health requirements that may substantially affect implementation of the remedies.

4. Presumptive remedies.

a. To expedite corrective action, in lieu of an analysis meeting the requirements of subdivision 3 of this subsection, the owner or operator may choose to propose containment of contamination as a presumptive remedy for a disposal unit. Any such proposal shall be accompanied by:

(1) An assessment of risks resulting from the contamination at the solid waste boundary and at the facility boundary; and

(2) Procedures for evaluating the impact of the selected remedy. The remedy will evaluated every three years following its implementation.

~~(2)~~ (3) A schedule for initiating and completing remedial activities.

b. The presumptive remedy for solid waste landfills shall be limited to one or more of the following:

(1) Containment of the landfill mass, including an impermeable cap;

(2) Control of the landfill leachate;

(3) Control of the migration of contaminated ground water;

(4) Collection and treatment of landfill gas; and

(5) Reduction of saturation of the landfill mass.

c. Containment may be selected as a sole or partial remedy until a determination is made under subdivision C 2 of this section that another remedy shall be employed to meet the requirements of this section. An assessment of corrective measures meeting the requirements of subdivision 3 of this subsection shall then be initiated within 90 days of such a determination.

d. The selection of a presumptive remedy may not be made as a sole remedy for facilities exhibiting contamination beyond facility boundaries unless approved by the director. To consider such a request, the proposed presumptive remedy must address the reduction of contamination beyond the facility boundary.

e. Upon receiving an approval from the director of the proposed presumptive remedy, the owner or operator may proceed with the implementation of the remedy in accordance with subsection C of this section.

5. The owner or operator shall discuss the results of the corrective measures assessment or the proposal for presumptive remedy, prior to the selection of remedy, in a public meeting.

a. 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 discuss the results of the corrective measures assessment or proposal for presumptive remedy as applicable. The notice shall include:

(1) The name of the facility and location of the facility;

(2) A statement indicating that as a result of exceeding a ground water protection standard a corrective measures assessment or presumptive remedy is proposed;

(3) A statement that the purpose of the public participation is to acquaint the public with the technical aspects of the proposal and how the standards and the requirements of these regulations 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;

(4) Announcement of a 30-day comment period, in accordance with subdivision 5 d of this subsection, and the name, telephone, 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;

(5) Announcement of the date, time, and place for a public meeting held in accordance with subdivision 5 c of this subsection; and

(6) Location where copies of the documentation to be submitted to the department in support of the ~~permit-by-rule notification~~ corrective measures assessment or proposal of presumptive remedy 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 5 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.

B. Selection of remedy.

1. Based on the results of the corrective measures assessment~~, or the proposal of presumptive remedy~~ conducted under subsection A of this section, the owner or operator shall select a remedy that, at a minimum, meets the standards listed in subdivision 2 of this subsection. The owner or operator shall prepare a written corrective action plan containing the proposed selected remedy.

2. The selected remedies to be included in the corrective action plan shall:

a. Be protective of human health and the environment;

b. Attain the ground water protection standard as specified pursuant to~~ 9 VAC 20-80-250 D, 9 VAC 20-80-260 D, or 9 VAC 20-80-270 D~~ 9 VAC 20-80-300;

c. Control the sources of releases so as to reduce or eliminate, to the maximum extent practicable, further releases of solid waste constituents into the environment that may pose a threat to human health or the environment; and

d. Comply with standards for management of wastes as specified in subdivision C 4 of this section.

3. In preparing a proposed corrective action plan, the owner or operator will consider the following evaluation factors:

a. The long-term and short-term effectiveness and protectiveness of the potential remedies, along with the degree of certainty that the remedy will prove successful based on consideration of the following:

(1) Magnitude of reduction of existing risks;

(2) Magnitude of residual risks in terms of likelihood of further releases due to waste remaining following implementation of a remedy;

(3) The type and degree of long-term management required, including monitoring, operation, and maintenance;

(4) Short-term risks that might be posed to the community, workers, or the environment during implementation of such a remedy, including potential threats to human health and the environment associated with excavation, transportation, and redisposal or containment;

(5) Time until full protection is achieved;

(6) Potential for exposure of humans and environmental receptors to remaining wastes, considering the potential threat to human health and the environment associated with excavation, transportation, redisposal, or containment;

(7) Long-term reliability of the engineering and institutional controls; and

(8) Potential need for replacement of the remedy.

b. The effectiveness of the remedy in controlling the source to reduce further releases based on consideration of the following factors:

(1) The extent to which containment practices will reduce further releases; and

(2) The extent to which treatment technologies may be used.

c. The ease or difficulty of implementing a potential remedy based on consideration of the following types of factors:

(1) Degree of difficulty associated with constructing the technology;

(2) Expected operational reliability of the technologies;

(3) Need to coordinate with and obtain necessary approvals and permits from other agencies;

(4) Availability of necessary equipment and specialists; and

(5) Available capacity and location of needed treatment, storage, and disposal services.

d. Practicable capability of the owner or operator, including a consideration of the technical and economic capability.

e. The degree to which community concerns raised as the result of the public meeting required by subdivision A 4 of this section are addressed by a potential remedy.

4. The owner or operator shall specify as part of the selected remedy a schedule for initiating and completing remedial activities. Such a schedule shall require the initiation of remedial activities within a reasonable period of time taking into consideration the factors set forth in this section. The owner or operator shall consider the following factors in determining the schedule of remedial activities:

a. Extent and nature of contamination;

b. Practical capabilities of remedial technologies in achieving compliance with ground water protection standards established under ~~9 VAC 20-80-250 D, 9 VAC 20-80-260 D, or 9 VAC 20-80-270 D~~ 9 VAC 20-80-300 and other objectives of the remedy;

c. Availability of treatment or disposal capacity for wastes managed during implementation of the remedy;

d. Desirability of utilizing technologies that are not currently available, but which may offer significant advantages over already available technologies in terms of effectiveness, reliability, safety, or ability to achieve remedial objectives;

e. Potential risks to human health and the environment from exposure to contamination prior to completion of the remedy;

f. Resource value of the aquifer including:

(1) Current and future uses;

(2) Proximity and withdrawal rates of users;

(3) Ground water quantity and quality;

(4) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to the waste constituents;

(5) The hydrological characteristics of the facility and surrounding land;

(6) Ground water removal and treatment costs; and

(7) The cost and availability of alternate water supplies;

g. Practical capability of the owner or operator.

h. Other relevant factors.

5. The proposed corrective action plan shall be submitted to the director for approval. Prior to rendering his approval, the director may:

a. Request a technical modification of the program;

b. Request a change in the time schedule; or

c. Determine that the remediation of the release of an ~~Appendix~~ Table 5.1 constituent from the disposal unit is not necessary, if the owner or operator demonstrates to the satisfaction of the director that:

(1) The ground water is additionally contaminated by substances that have originated from a source other than the facility and those substances are present in concentrations such that cleanup of the release from the facility would provide no significant reduction in risk to actual or potential receptors; or

(2) The constituent is present in ground water that is (i) not currently or reasonably expected to be a source of drinking water and (ii) not hydraulically connected with waters to which the constituents are migrating or are likely to migrate in a concentration that would exceed the ground water protection standards established; or

(3) Remediation of the release is technically impracticable; or

(4) Remediation results in unacceptable cross-media impacts.

6. A determination by the director pursuant to subdivisions A 5 e (3) of this section or 5 c of this subsection shall not affect the authority of the state to require the owner or operator to undertake source control measures or other measures that may be necessary to eliminate or minimize further releases to the ground water, to prevent exposure to the ground water, or to remediate the ground water to concentrations that are technically practicable and significantly reduce threats to human health or the environment.

7. After an evaluation of the proposed plan, the director will:

a. Approve the proposed corrective action plan as written or modified by the owner or operator; or

b. Disapprove the proposed corrective action plan and undertake appropriate containment or clean up actions in accordance with § 10.1-1402 (18) of the Virginia Waste Management Act.

C. Implementation of the ~~corrective action plan~~ remedy.

1. Based on the schedule established under subdivision A 4 or B 4 of this section for initiation and completion of remedial activities, the owner or operator shall:

a. Establish and implement a corrective action ground water monitoring program that:

(1) At a minimum, meets the requirements of a ground water monitoring program under ~~9 VAC 20-80-250 D 6, 9 VAC 20-80-260 D 5, or 9 VAC 20-80-270 D 5~~ 9 VAC 20-80-300;

(2) Indicates the effectiveness of the corrective action remedy; and

(3) Demonstrates compliance with the ground water protection standard pursuant to subdivision 5 of this subsection.

b. Implement the corrective action remedy selected under subdivision A 4 or subsection B of this section; and

c. Take any interim measures necessary to ensure the protection of human health and the environment. Interim measures should, to the greatest extent practicable, be consistent with the objectives of and contribute to the performance of any remedy that may be required pursuant to subsection B of this section. The following factors shall be considered by an owner or operator in determining whether interim measures are necessary:

(1) Time required to develop and implement a final remedy;

(2) Actual or potential exposure of nearby populations or environmental receptors to hazardous constituents;

(3) Actual or potential contamination of drinking water supplies or sensitive ecosystems;

(4) Further degradation of the ground water that may occur if remedial action is not initiated expeditiously;

(5) Weather conditions that may cause the constituents to migrate or be released;

(6) Risks of fire or explosion, or potential for exposure to constituents as a result of an accident or failure of a container or handling system; and

(7) Other situations that may pose threats to human health and the environment.

2. An owner or operator or the director may determine, based on information developed after implementation of the remedy has begun or other information, that compliance with requirements of subdivision B 2 of this section are not being achieved through the remedy selected. In such cases, the owner or operator shall implement other methods or techniques that could practicably achieve compliance with the requirements, unless the owner or operator makes the determination under subdivision 3 of this subsection.

3. If the owner or operator determines that compliance with requirements under subdivision 2 of this subsection cannot be practically achieved with any currently available methods, the owner or operator shall:

a. Based on a certification of a qualified ground water scientist, obtain an approval of the director that compliance with requirements under subdivision 2 of this subsection cannot be practically achieved with any currently available methods;

b. Implement alternate measures to control exposure of humans or the environment to residual contamination, as necessary to protect human health and the environment; and

c. Implement alternate measures for control of the sources of contamination, or for removal or decontamination of equipment, units, devices, or structures that are:

(1) Technically practicable; and

(2) Consistent with the overall objective of the remedy.

d. Submit a report to the director justifying the alternate measures at least 14 days prior to implementing the alternate measures.

4. All solid wastes that are managed pursuant to a remedy required under subdivision A 4 or subsection B of this section, or an interim measure required under subdivision 1 c of this subsection, shall be managed in a manner:

a. That is protective of human health and the environment; and

b. That complies with all applicable federal and Virginia requirements.

5. Remedies selected pursuant to subdivision A 4 or subsection B of this section shall be considered complete when:

a. The owner or operator complies with the ground water protection standards at all points within the plume of contamination that lie beyond the ground water monitoring well system.

b. Compliance with the ground water protection standards has been achieved by demonstrating that concentrations of ~~Appendix~~ Table 5.1 constituents have not exceeded the ground water protection standards for a period of three consecutive years using the appropriate statistical procedures and performance standards.

c. All actions required to complete the remedy have been satisfied.

6. Upon completion of the remedy, the owner or operator shall notify the director within 14 days by submitting a certification that the remedy has been completed in compliance with the requirements of subdivision 5 of this subsection. The certification shall be signed by the owner or operator and by a qualified ground water scientist.

7. When, upon completion of the certification, the director determines that the corrective action remedy has been completed in accordance with the requirements under subdivision 5 of this subsection, he will release the owner or operator from the requirements for financial assurance for corrective action under 9 VAC 20-70-10 et seq.

APPENDIX 5.1

LIST OF HAZARDOUS CONSTITUENTS

Common Name[1]	CAS RN[2]	Chemical Abstracts Service Index Name[3]
Acenaphthene	83-32-9	Acenaphthylene, 1,2-dihydro
Acenaphthytene	208-96-8	Acenaphthylene-
Acetone	67-64-1	2-Propenone
Acetonitrile; Methyl cyanide	75-05-8	Acetonitrile
Acetophenone	98-86-2	Ethanone, 1-phenyl-
2-Acetylaminofluorene; 2-AAF	53-96-3	Acetamide, N-9H-fluoren-2-yl
Acrolein	107-02-8	2-Propenal
Acrylonitrile	107-13-1	2-Propenenitrile
Aldrin	309-00-2	1,4:5,8- Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro- 1,4,4a,5,8,aa-hexahydro-(1α,4α,4αβ,5α,8α,8αβ)-
Allyl chloride	107-05-1	1-Propene, 3-chloro
4-Aminobiphenyl	92-67-1	[1,11-Biphenyl-4-amine
Anthracene	120-12-7	Anthracene
Antimony	(Total)	Antimony
Arsenic	(Total)	Arsenic
Barium	(Total)	Barium
Benzene	71-43-2	Benzene
Benzo[a]anthracene; Benzanthracene	56-55-3	Benz[a]anthracene
Benzo[b]fluoranthene	205-99-2	Benz[e]acephanthrylene
Benzo[k]fluoranthene	207-08-9	Benzo[k]fluorenthene
Benzo[ghi]perylene	191-24-2	Benzo[ghi]perylene
Benzo[a]pyrene	50-32-8	Benzo[a]pyrene
Benzyl alcohol	100-51-6	Benzenemethanol

~~Beryllium~~	~~(Total)~~	~~Beryllium~~
~~alpha-BHC~~	~~319-84-6~~	~~Cyclohexane, 1,2,3,4,5,6- hexachloro-, (1α,2α,3β,4α,5β,6β,)-~~
~~beta-BHC~~	~~319-85-7~~	~~Cyclohexane, 1,2,3,4,5,6- hexachloro-, (1α,2β,3α,4β,5α,6β,)-~~
~~delta-BHC~~	~~319-86-8~~	~~Cyclohexane, 1,2,3,4,5,6- hexachloro-, (1α,2α,3α,4β,5α,6β,)-~~
~~gamma-BHC; Lindane~~	~~58-89-9~~	~~Cyclohexane, 1,2,3,4,5,6- hexachloro-, (1α,2α,3β,4α,5α,6β,)-~~
~~Bis(2-chloroethoxy)methane~~	~~111-91-1~~	~~Ethane,1,1'-[methylenebis(oxy)]bis[2-chloro-~~
~~Bis(2-chloroethyl) ether; Dichloroethyl ether~~	~~111-44-4~~	~~Ethane, 1,1'-oxybis[2-chloro-~~
~~Bis(2-chloro-1-methylethyl) ether; 2, 2'-Dichlorodiisopropyl ether; DCIP~~	~~108-60-1~~ ~~See note[4]~~	~~Propane, 2,2'-oxybis(1-chloro-~~
~~Bis(2-ethylhexyl)phthalate~~	~~117-81-7~~	~~1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester~~
~~Bromochloromethane;.Chlorobromomethane~~	~~74-97-5~~	~~Methane, bromochloro~~
~~Bromodichloromethane;.Dibromochloromethane~~	~~75-27-4~~	~~Methane, bromodichloro~~
~~Bromoform; Tribromomethane~~	~~75-25-2~~	~~Methane, tribromo~~
~~4-Bromophenyl phenyl ether~~	~~101-55-3~~	~~Benzene, 1-bromo-4-phenoxy~~
~~Butyl benzyl phthalate; Benzyl butyl phthalate~~	~~85-68-7~~	~~1,2-Benzenedicarboxylic acid, butyl phenylmethyl ester~~
~~Cadium~~	~~(Total)~~	~~Cadium~~
~~Carbon disulfide~~	~~75-15-0~~	~~Carbon disulfide~~
~~Carbon tetrachloride~~	~~56-23-5~~	~~Methane, tetrachloro~~
~~Chlordane~~	~~Note[5]~~	~~4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-~~
~~p-Chloroaniline~~	~~106-47-8~~	~~Benzenamine, 4-chloro~~
~~Chlorobenzene~~	~~108-90-7~~	~~Benzene, chloro~~
~~Chlorobenzilate~~	~~510-15-6~~	~~Benzeneacetic acid, 4-chloro-α-(4-chlorophenyl)-α-hydroxy-, ethyl ester~~

p-Chloro-m-cresol; 4-Chloro-3-methylphenol	59-50-7	Phenol, 4-chloro- 3-methyl-
Chloroethane; Ethyl chloride	75-00-3	Ethane, chloro-
Chloroform; Trichloromethane	67-66-3	Methane, trichloro-
2-Chloronaphthalene	91-58-7	Naphthalene, 2-chloro
2-Chlorophenol	95-57-8	Phenol, 2-chloro
4-Chlorophenyl phenyl ether	7005-72-3	Benzene, 1-chloro-4-phenoxy
Chloroprene	126-99-8	1,3-Butadiene, 2-chloro
Chromium	(Total)	Chromium
Chrysene	218-01-9	Chrysene
Colbalt	(Total)	Colbalt
Copper	(Total)	Copper
m-Cresol; 3-methyphenol	108-39-4	Phenol, 3-methyl
o-Cresol; 2-methyphenol	95-48-7	Phenol, 2-methyl
p-Cresol; 4-methyphenol	106-44-5	Phenol, 4-methyl
Cyanide	57-12-5	Cyanide
2,4-D; 2,4-Dichlorophenoxyacetic acid	94-75-7	Acetic acid, (2,4-dichlorophenoxy)-
4,4'-DDD	72-54-8	Benzene, 1,1' (2,2- dichloroethylidene)bis[4-chloro-
4,4'-DDE	72-55-9	Benzene, 1,1' (dichloroethylidene)bis[4-chloro-
4,41-DDT	50-29-3	Benzene, 1'1-(2,2,2-trichloroethylidene)bis[4-chloro
Dibenz[a,h]anthracene	53-70-3	Dibenz[a,h]anthracene
Dibenzofuran	132-64-9	Dibenzofuran
Dibromochloromethane; Chlorodibromomethane	124-48-1	Methane, dibromochloro
1,2-Dibromo-3-chloropropane; DBCP	96-12-8	Propane, 1,2-dibromo-3-chloro
1,2-Dibrimoethane; Ethylene dibromide; EDB	106-93-4	Ethane, 2,3-dibromo
Di-n-butyl phthalate	84-74-2	1,2-Benzenedicarboxylic acid, dibutyl ester
o-Dichlorobenzene; 1,2-Dichlorobenzene	95-50-1	Benzene, 1,2-dichloro-
m-Dichlorobenzene; 1,3-Dichlorobenzene	541-73-1	Benzene, 1,3-dichloro-
p-Dichlorobenzene; 1,4-Dichlorobenzene	106-46-7	Benzene, 1,4-dichloro
3,3'-Dichlorobenzidine	91-94-2	1,1'-Biphenyl-4,4'diamine, 3,3'-dichloro

~~trans-1,4-Dichloro-2-butene~~	~~110-57-6~~	~~2-Butene, 1,4-dichloro-,(E)-~~
~~Dichlorodifluoromethane; CFC 12;~~	~~75-71-8~~	~~Methane, dichlorodifluoro~~
~~1.1-Dichloroethane; Ethylidene chloride~~	~~75-34-3~~	~~Ethane,1,1-dichloro~~
~~1,2-Dichloroethane; Ethylene dichloride~~	~~107-06-2~~	~~Ethane, 1,2-dichloro~~
~~1,1-Dichloroethylene; 1,1-Dichloroethene; Vinylidene chloride~~	~~75-35-4~~	~~Ethane, 1,1-dichloro-~~
~~cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene~~	~~156-59-2~~	~~Ethene, 1,2-dichloro-, (Z)~~
~~trans-1,2-Dichloroethylene~~	~~156-60-5~~	~~Ethene, 1,2-dichloro-,(E)~~
~~trans-1,2-Dichroroethene~~		
~~2,4-Dichlorophenol~~	~~120-83-2~~	~~Phenol, 2,4-dichloro~~
~~2,6-Dichlorophenol~~	~~87-65-0~~	~~Phenol, 2,6-dichloro~~
~~1,2-Dichloropropane; Propylene dichloride~~	~~78-87-5~~	~~Propane, 1,2-dichloro~~
~~1,3-Dichloropropane; Trimethylene dichloride~~	~~142-28-9~~	~~Propane, 1,3-dichloro~~
~~2, 2-Dichloropropane; isopropylidene chloride~~	~~594-20-7~~	~~Propane, 2,2-dichloro~~
~~1,1-Dichloropropene~~	~~563-58-6~~	~~1-Propene, 1,1-dichloro~~
~~cis-1,3-Dichloropropene~~	~~10061-01-5~~	~~1-Propene, 1,3-dichloro-,(Z)~~
~~trans-1,3-Dichloropropene~~	~~10061-02-6~~	~~1-Propene, 1,3-dichloro-,(E)~~
~~Dieldrin~~	~~60-57-1~~	~~2,7:3,6-Dimethanonaphth[2,3-bioxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-(1aα,2β,2aα,3β,6β,6aα,7β,7aα)-~~
~~Diethyl phthalate~~	~~84-66-2~~	~~1,2- Benzenedicarboxylic acid, diethyl ester~~
~~O,O-Diethyl O-2-pyrazinyl phosphorothioate; Thionazin~~	~~297-97-2~~	~~Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester~~
~~Dimethoate~~	~~60-51-5~~	~~Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl] ester~~
~~p-(Dimethylamino)azobenzene~~	~~60-11-7~~	~~Benzenamine, N,N-dimethyl-4-(phenylazo)-~~
~~7,12-Dimethylbenz[a]anthracene~~	~~57-97-6~~	~~Benz[a]anthracene, 7,12-dimethyl~~
~~3,3'-Dimethylbenzidine~~	~~119-93-7~~	~~[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl~~
~~2,4-Dimethylphenol; m-Xylenol~~	~~105-67-9~~	~~Phenol, 2,4-dimethyl~~

Dimethyl phthalate	131-11-3	1,2-Benzenedicarboxylic acid, dimethyl ester
m-Dinitrobenzene	99-65-0	Benzene, 1,3-dinitro
4,6-Dinitro-o-cresol 4,6-Dinitro-2-methylphenol	534-52-1	Phenol, 2-methyl-4,6-dinitro-
2,4-Dinitrophenol	51-28-5	Phenol, 2,4-dinitro
2,4-Dinitrotoluene	121-14-2	Benzene, 1-methyl-2,4-dinitro
2,6-Dinitrotoluene	606-20-2	Benzene, 2-methyl-1,3-dinitro
Dinoseb; DNBP; 2-sec-Butyl-4,6-dinitrophenol	86-85-7	Phenol, 2-(1-methylpropyl)-4,6-dinitro
Di-n-octyl phthalate	117-84-0	1,2-Benzenedicarboxylic acid, dioctyl ester
Diphenylamine	122-39-4	Benzenamine, M-phenyl
Disulfoton	298-04-4	Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl] ester
Endosulfan I	959-96-8	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide
Endosulfan II	33213-65-9	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5s,6,9,9a-hexahydro-, 3-oxide, (3a,5aα,6β,9β,9aα)-
Endosulfan sulfate	1031-07-8	6,9-Methano-2,4,3- banzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-,3,3-dioxide
Endrin	72-20-8	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2*,3,6,6a,7,7a-octahydro-, (1aα,2β,2aβ,3a,6α,6aβ,7β,7aα)-
Endrin aldehyde	7421-93-4	1,2,4-Methenocyclopentacdpentalene-5-carboxaldehyde, 2,2a,3,3,4,7-hexachlorodecahydro-, (1α,2β,2aβ,4β,4aβ,5β,6aβ,6bβ,7R*)-
Ethylbenzene	100-41-4	Benzene,ethyl

Ethyl methacrylate	97-63-2	2-Propenoic acid, 2-methyl , ethyl ester
Ethylmethanesulfonate	62-50-0	Methanesulfonic acid, ethyl ester
Famphur	52-85-7	Phosphorothioic acid, O-[4-[(dimethylamino)sulfonyl] phenyl] O,O-dimethyl ester
Fluoranthene	206-44-0	Fluoranthene
Fluorene	86-73-7	9H Fluorene
Heptachlor	76-44-8	4,7-Methano-1H-indene,1,4,5,6,7,8,8-heptachlor-3a,4,7,7a-tetrahydro
Heptachlor epoxide	1024-57-3	2,5-Methano-2H-indeno[1,2-b]oxirene,2,3,4,5,6,7,7-heptachloro-1a,1b,5,5a,6,6a-hexahydro-, (1aα,1bβ,2α,5α,5aβ,6,6aα)
Hexachlorobenzene	118-74-1	Benzene, hexachloro
Hexachlorobutadiene	87-68-3	1,3-Butadiene, 1,1,2,3,4,4-hexachloro
Hexachlorocyclopentadiene	77-47-4	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro
Hexachloroethane	67-72-1	Ethane, hexachloro
Hexachloropropene	1888-71-7	1-Propene,1,1,2,3,3,3-hexachloro-
2-Hexanone; Methyl butyl ketone	591-78-6	2-Hexanone
Indeno[1,2,3-cd]pyrene	193-39-5	Indeno[1,2,3-cd]pyrene
Isobutyl alcohol	78-83-1	1-Propanol, 2-methyl
Isodrin	465-73-6	1,4,5,8-Dimethanonaphthalene 1,2,3,4,10,10 hexachloro-1,4,4a,5,8,8a hexahydro(1α,4α,4aβ,5β,8β,8aβ)-
Isophorone	78-59-1	2-Cyclohexen-1-one,3,5,5-trimethyl
Isosafrole	120-58-1	1,3- Benzodioxole, 5-(1-propenyl)
Kepone	143-50-0	1,3,4-Metheno-2H-cyclobuta[cd]pentalen-2-one 1,1a,3,3a,4,5,5,5a,5b,6-decachlorooctahydro-
Lead	(Total)	Lead

Mercury	(Total)	Mercury
Methacrylonitrile	126-98-7	2-Propenenitrile, 2-methyl
Methapyrilene	91-80-5	1,2- Ethanedimine, N,N-dimethyl-N'- 2-pyridinyi-N'2-thianylmethyl
Methoxychlor	72-43-5	Benzene, 1,1'(2,2,2,trichloroethylidene)bis[4-methoxy-
Methyl bromide; Bromomethane	74-83-9	Methane, bromo-
Methyl chloride; Chloromethane	74-87-3	Methane, chloro-
3-Methylcholanthrene	56-49-5	Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-
Methyl ethyl ketone; MEK; 2-Butanone	78-93-3	2-Butanone
Methyl iodide; Iodomethane	74-88-4	Methane, iodo-
Methyl methacrylate	80-62-6	2-Propenoic acid, 2-methyl-, methyl ester
Methyl methanesulfonate	66-27-3	Methanesulfonic acid, methyl ester
2-Methylnaphthalene	91-57-6	Naphthalene, 2-methyl
Methyl parathion; Parathion-methyl methyl	298-00-0	Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl) ester
4-Methyl-2-pentanone; Methyl isobutyl ketone	108-10-1	2-Pentanone, 4-methyl-
Methylene bromide; Dibromomethane	74-95-3	Methane, dibromo-
Methylene chloride; Dichloromethane	75-09-2	Methane, dichloro
Naphthalene	91-20-3	Naphthalene
1,4-Naphthoquinone	130-15-4	1,4-Naphthalenedione
1- Naphthylamine	134-32-7	1-Naphthalenamine
2-Napthylamine	91-59-8	2-Naphthalenamine
Nickel	(Total)	Nickel
o-Nitroaniline; 2-Nitroaniline	88-74-4	Benzenamine, 2-nitro-
m-Nitroaniline; 3-Nitroaniline	99-09-2	Benzenamine, 3-nitro-
p-Nitroaniline; 4-Nitroaniline	100-01-6	Benzenamine, 4-nitro-
Nitrobenzene	98-95-3	Benzene, nitro-
o-Nitrophenol; 2-Nitrophenol	88-75-5	Phenol, 2-nitro-

p-Nitrophenol; 4-Nitrophenol	100-02-7	Phenol, 4-nitro-
N-Nitrosodi-n-butylamine	924-16-3	1-Butenamine, N-butyl-N-nitroso
N-Nitrosodiethylamine	55-18-5	Ethanamine, N-ethyl-N-nitroso
N-Nitrosodimethylamine	62-75-9	Methanamine, N-methyl-N-nitroso
N-Nitrosodiphenylamine	86-30-6	Benzenamine, N-nitroso-N-phenyl
N-Nitrosodipropylamine; N-Nitroso-N-dipropylamine; Di-n-propylnitrosamine	621-64-7	1-Propanamine, N-nitroso-N-propyl
N-Nitrosamethylethylamine	10595-95-6	Ethanamine, N-methyl-N-nitroso
N-Nitrosopiperidine	100-75-4	Piperidine, 1-nitroso
N-Nitrosopyrrolidine	930-55-2	Pyrrolidine, 1-nitroso
5-Nitro-o-toluidine	99-55-8	Benzenamine, 2- methyl-5-nitro
Parathion	56-38-2	Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester
Pentachlorobenzene	608-93-5	Benzene, pentachloro
Pentachloronitrobenzene	82-68-8	Benzene, pentachloronitro-
Pentachlorophenol	87-86-5	Phenol, pentachloro
Phenacetin	62-44-2	Acetamide, N-4(ethoxyphenyl)
Phenanthrene	85-01-8	Phenanthrene
Phenol	108-95-2	Phenol
p-Phenylenediamine	106-50-3	1,4-Benzenediamine
Phorate	298-02-2	Phosphorodithioic acid, O,O-diethyl-S-[(ethylthio)methyl] ester
Polychlorinated biphenyls; PCBS; Aroclors	Note[6]	1,1' Biphenyl, chloro derivatives
Pronamide	23950-58-5	Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-
Propionitrile; Ethyl cyanide	107-12-0	Propanenitrile
Pyrene	129-00-0	Pyrene
Safrole	94-59-7	1,3-Benzodioxole, 5-(2-propenyl)
Selenium	(Total)	Selenium

Silver	(Total)	Silver
Silvex; 2,4,5-TP	93-72-1	Propanoic acid, 2-(2,4,5-trichlorophenoxy)
Styrene	100-42-5	Benzene, ethenyl
Sulfide	18496-25-8	Sulfide
2,4,5-T; 2,4,5-Trichlorophenoxyacetic acid	93-76-5	Acetic acid, (2,4,5-trichlorophenoxy)
1,2,4,5-Tetrachlorobenzene	95-94-3	Benzene, 1,2,4,5-tetrachloro
1,1,1,2-Tetrachloroethane	630-20-6	Ethane, 1,1,1,2-tetrachloro
1,1,2,2-Tetrachloroethane	79-34-5	Ethane, 1,1,2,2-tetrachloro
Tetrachloroethylene; Tetrachloroethene; Perchloroethylene	127-18-4	Ethene, tetrachloro
2,3,4,6-Tetrachlorophenol	58-90-2	Phenol, 2,3,4,6-tetrachloro
Thallium	(Total)	Thallium
Tin	(Total)	Tin
Toluene	108-88-3	Benzene, methyl-
o-Toluidine	95-53-4	Benzenamine, 2-methyl
Toxaphene	Note[9]	Toxaphene
1,2,4-Trichlorobenzene	120-82-1	Benzene, 1,2,4-trichloro
1,1,1-Trichloroethane; Methychloroform	71-55-6	Ethane, 1,1,1-trichloro-
1,1,2-Trichloroethane	79-00-5	Ethane, 1,1,2-trichloro-
Trichloroethylene; Trichloroethene ethene	79-01-6	Ethane, trichloro
Trichlorofluoromethane; CFC-11	75-69-4	Methane, trichlorofluoro
2,4,5-Trichlorophenol	95-95-4	Phenol, 2,4,5-trichloro
2,4,6-Trichlorophenol	88-06-2	Phenol, 2,4,6-trichloro
1,2,3-Trichloropropane	96-18-4	Propane, 1,2,3-trichloro
O,O,O-Triethyl phosphorothioate	126-68-1	Phosphorothioic acid, O,O,O-triethylester
sym-Trinitrobenzene	99-35-4	Benzene, 1,3,5-trinitro
Vanadium	(Total)	Vanadium
Vinyl acetate	108-05-4	Acetic acid, ethenyl ester

~~Vinyl chloride; Chloroethene~~	~~75-01-4~~	~~Ethene, chloro~~
~~Xylene(total)~~	~~Note[8]~~	~~Benzene, dimethyl~~
~~Zinc~~	~~(Total)~~	~~Zinc~~

~~NOTES:~~

~~1. Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.~~

~~2. Chemical Abstracts Service Registry Number. Where "Total" is entered, all species in the ground water that contains this element are included.~~

~~3. CAS index names are those used in the 9th Collective Index.~~

~~4. This substance is often called Bis(2-chloroisopropyl) ether, the name Chemical Abstracts Service applies to its noncommercial isomer, Propane, 2.2'-oxybis2-chloro (CAS RN 39638-32-9).~~

~~5. Chlordane: This entry includes alpha-chlordane (CAS RN 5103-71-9), beta-chlordane (CAS RN 5103-74-2), gamma-chlordane (CAS RN 5566-34-7), and constituents of chlordane (CAS RN 57-74-9 and CAS RN 12739-03-6).~~

~~6. Polychlorinated biphenyls (CAS RN 1336-36-3); this category contains congener chemicals, including constituents of Aroclor 1016 (CAS RN 12674-11-2), Aroclor 1221 (CAS RN 11104-28-2), Aroclor 1232 (CAS RN 11141-16-5), Aroclor 1242 (CAS RN 53469-21-9), Aroclor 1248 (CAS RN 12672-29-6), Aroclor 1254 (CAS RN 11097-69-1), and Arclor 1260 (CAS RN 11096-82-5).~~

~~7. Toxaphene: This entry includes congener chemicals contained in technical toxaphene (CAS RN 8001-35-2), i.e., chlorinated camphene.~~

~~8. Xylene (total): This entry includes o-xylene (CAS RN 96-47-6), m-xylene (CAS RN 108-38-3), p-xylene (CAS RN 106-42-3), and unspecified xylenes (dimethylbenzenes) (CAS RN 1330-20-7).~~

APPENDIX 5.2 (Repealed.)

APPENDIX 5.3 (Repealed.

~~APPENDIX 5.4~~

~~STATISTICAL TESTS METHODS~~

APPENDIX 5.5

CONSTITUENTS FOR GROUND WATER MONITORING

Common Name[1]	CAS RN[2]
Inorganic Constituents	
1) Antimony.....	(Total)
2) Arsenic.....	(Total)
3) Barium.....	(Total)
4) Beryllium.....	(Total)
5) Cadmium.....	(Total)
6) Chromium.....	(Total)
7) Cobalt.....	(Total)
8) Copper.....	(Total)
9) Lead.....	(Total)
10) Nickel.....	(Total)
11) Selenium.....	(Total)
12) Silver.....	(Total)
13) Thallium.....	(Total)
14) Vanadium.....	(Total)
15) Zinc.....	(Total)
Organic Constituents	
16) Acetone.....	67-64-1
17) Acrylonitrile.....	107-13-1
18) Benzene.....	71-43-2
19) Bromochloromethane.....	74-97-5
20) Bromodichloromethane.....	75-27-4
21) Bromoform; Tribromomethane.....	75-25-2
22) Carbon disulfide.....	75-15-0
23) Carbon tetrachloride.....	56-23-5
24) Chlorobenzene.....	108-90-7

25) Chloroethane; Ethyl chloride.....	75-00-3
26) Chloroform; Trichloromethane.....	67-66-3
27) Dibromochloromethane; Chlorodibromomethane.....	124-48-1
28) 1,2-Dibromo-3-chloropropane;DBCP.....	96-12-8
29) 1,2-Dibromoethane; Ethylene dibromide; EDB.....	106-93-4
30) o-Dichlorobenzene; 1,2-Dichlorobenzene...	95-50-1
31) p-Dichlorobenzene; 1,4-Dichlorobenzene...	106-46-7
32) trans-1,4-Dichloro-2-butene.....	110-57-6
33) 1,1-Dichloroethane; Ethylidene chloride.....	75-34-3
34) 1,2-Dichloroethane; Ethylene dichloride.....	107-06-2
35) 1,1-Dichloroethylene; 1,1-Dichloroethene; Vinyl chloride	75-35-4
36) cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene.....	156-59-2
37) trans-1,2-Dichloroethylene; trans-1,2-Dichloroethene....	156-60-5
38) 1,2-Dichloropropane; Propylene dichloride.	78-87-5
39) cis-1,3-Dichloropropene.....	10061-01-5
40) trans-1,3-Dichloropropene.....	10061-02-6
41) Ethylbenzene.....	100-41-4
42) 2-Hexanone; Methyl butyl ketone.....	591-78-6
43) Methyl bromide; Bromomethane.....	74-83-9
44) Methyl chloride; Chloromethane.....	74-87-3
45) Methylene bromide; Dibromomethane.....	74-95-3
46) Methylene chloride; Dichloromethane.....	75-09-2
47) Methyl ethyl ketone; MEK; 2-Butanone.....	78-93-3
48) Methyl iodide; Iodomethane.....	74-88-4
49) 4-Methyl-2-pentanone; Methyl isobutyl ketone.....	108-10-1
50) Styrene.....	100-42-5
51) 1,1,1,2-Tetrachloroethane.....	630-20-6
52) 1,1,2,2-Tetrachloroethane.....	79-34-5
53) Tetrachloroethylene; Tetrachloroethene; Perchloroethylene	127-18-4

~~54) Toluene..... 108-88-3~~

~~55) 1,1,1-Trichloroethane; Methylchloroform.... 71-55-6~~

~~56) 1,1,2-Trichloroethane..... 79-00-5~~

~~57) Trichloroethylene; Trichloroethene..... 79-01-6~~

~~58) Trichlorofluoromethane; CFC-11..... 75-69-4~~

~~59) 1,2,3-Trichloropropane..... 96-18-4~~

~~60) Vinyl acetate..... 108-05-4~~

~~61) Vinyl chloride..... 75-01-4~~

~~62) Xylenes..... 1330-20-7~~

~~NOTES:~~

~~1. Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.~~

~~2. Chemical Abstracts Service registry number. Where "Total" is entered, all species in the ground water that contain this element are included.~~

This list contains 47 volatile organics for which possible analytical procedures provided in EPA Report SW-846 "Test Methods for Evaluating Solid Waste," third edition, November 1986, as revised December 1987, include Method 8260; and 15 metals for which SW-846 provides either Method 6010 or a method from the 7000 series of methods.

APPENDIX 5.6

STATE MONITORING PROGRAM

~~A. Applicability.~~

~~1. Owners or operators of sanitary disposal facilities that have ceased to accept solid waste prior to the federally imposed deadlines shown in subsection B in this appendix are eligible, with the director's approval, to continue to conduct the state ground water monitoring program described in this appendix in lieu of the ground water monitoring program required under 9 VAC 20-80-250 D 5 and 6.~~

~~2. Owners or operators of disposal facilities not subject to the federal ground water monitoring requirements prescribed under 40 CFR Parts 257 and 258 will perform the ground water monitoring described in this appendix.~~

~~B. Deadlines for eligibility.~~

~~1. Sanitary landfills that stopped accepting waste before October 9, 1993, and in the case of a "small landfill" before April 9, 1994.~~

~~2. All other landfills other than sanitary landfills, including those that accepted hazardous waste from conditionally exempt small quantity generators after July 1, 1998.~~

~~C. Phase I monitoring program.~~

~~1. At a minimum, the owner or operator shall determine the concentration or value in ground water samples of the following parameters used as indicators of ground water contamination:~~

~~a. Specific conductance~~

~~b. pH~~

~~c. Total Organic Carbon (TOC)~~

~~d. Total Organic Halogens (TOX)~~

~~2. At least during the first year of ground water monitoring, for each of the indicator parameters specified in subdivision 1 of this subsection, obtain an appropriate number of samples applicable to the statistical test method selected from Appendix 5.4 from each well and establish the background level.~~

~~3. After the first year, at least semiannually, sample all monitoring wells and analyze the samples collected to evaluate potential ground water contamination (subdivision 1 of this subsection).~~

~~4. At least annually the owner or operator shall evaluate the data on static ground water surface elevations by preparing a potentiometric surface map to determine whether the requirements for locating the monitoring wells continue to be satisfied. If the evaluation shows that requirements are no longer satisfied, the owner or operator shall~~

~~modify the number, location, or depth of the monitoring wells to bring the ground water monitoring system into compliance with that requirement prior to the next required monitoring event.~~

~~5. Evaluation and response.~~

~~a. After the first year information has been collected for each well and for each indicator parameter specified in subdivision 1 of this subsection, the owner or operator shall perform a statistical evaluation of the analytical results comparing each well to its own background and to the upgradient wells. The owner or operator may choose to apply any one of the statistical methods listed in Appendix 5.4, provided the test chosen meets the required performance standards.~~

~~(1) If the comparisons for the upgradient wells show a statistically significant increase (or pH decrease), the owner or operator shall submit this information to the department as required by subdivision F 1 b of this appendix.~~

~~(2) If the comparisons for downgradient wells show a statistically significant increase (or pH decrease) over facility background or each well's background the owner or operator may obtain within 30 days additional ground water samples from those affected wells, split the samples in two, and obtain analyses of all additional samples to determine whether the significant difference was a result of laboratory error provided that this verification sampling is conducted within the compliance monitoring period.~~

~~b. If the preceding analysis confirms the statistically significant increase (or pH decrease), the owner or operator shall provide written notice to the director, within 14 days of the date of such confirmation, that the facility may be affecting ground water quality and that a Phase II monitoring program will be implemented.~~

~~c. The owner or operator may demonstrate that a source other than the unit caused the contamination or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in ground water quality. A report documenting this demonstration shall be certified by a qualified ground water scientist and approved by the director. If a successful demonstration is made and approved the owner or operator may continue Phase I monitoring. If after 90 days, or longer as approved by the director, a successful demonstration is not made and approved, the owner or operator shall initiate Phase II monitoring.~~

~~d. Within 90 days of confirming the statistically significant increase required under the provisions of subdivision 5 b of this subsection, establish a Phase II monitoring program meeting the requirements of subsection D of this appendix.~~

e. If the comparison required by subdivision 5 a of this subsection does not show a statistically significant increase (or pH decrease), the owner or operator shall submit this information in accordance with subdivision F 1 b of this appendix.

D. Phase II monitoring program.

1. The owner or operator shall implement the Phase II monitoring program and at a minimum determine:

a. The rate and extent of migration of the solid waste constituents in the ground water; and

b. The concentrations of the solid waste constituents in the ground water.

2. A Phase II monitoring program shall include the monitoring parameters shown in Appendix 5.5.

3. The owner or operator shall:

a. Make his first determination under subdivision 1 of this subsection as soon as technically feasible but no later than 18 months after implementing a Phase II monitoring program. The number and frequency of sampling shall be determined in accordance with the requirements of the statistical method selected.

b. Within 15 days after that determination, submit to the director, a written report containing an assessment of the ground water quality.

4. If the owner or operator finds, based on the results of the first determination, that no Appendix 5.5 constituents from the facility have entered the ground water, he may then reinstate the Phase I monitoring program. If the owner or operator reinstates the Phase I monitoring program, he shall so notify the director in the report submitted under subdivision C 5 b of this appendix.

5. If the owner or operator reinstates the Phase I monitoring and continues to find that one or more indicator parameters show statistically significant increases (or decrease in case of pH), he shall proceed with the actions required under subdivision 6 b of this subsection. However, if no Appendix 5.1 constituents are detected in the ground water, he shall continue sampling and analyzing Appendix 5.1 constituents every two years and not proceed to subdivision 6 c of this subsection until an Appendix 5.1 constituent is detected.

Should the results of continuing Phase II monitoring indicate a statistically significant increase in any Appendix 5.5 constituent, the owner or operator shall proceed with the actions required under subdivision 6 of this subsection.

6. If the owner or operator finds a statistically significant increase in any Appendix 5.5 constituent, then he shall:

a. Continue to make the required determinations on a semiannual basis until the Phase III monitoring program is implemented (at the request of the applicant, the director may approve an appropriate set of monitoring wells applicable to this phase of monitoring);

b. Within 90 days, sample the ground water in all monitoring wells and determine the concentration of all constituents identified in Appendix 5.1 that are present in the ground water;

c. No later than 18 months after a statistically significant increase for Appendix 5.5 constituents, establish a background value for each Appendix 5.1 constituent that has been found at the waste management unit boundary.

7. Within 60 days, The owner or operator shall propose a ground water protection standard for each Appendix 5.1 constituent detected in the ground water. The ground water protection standard shall be:

a. For constituents for which a maximum contaminant level (MCL) has been promulgated under § 1412 of the Safe Drinking Water Act (40 CFR Part 141), the MCL for that constituent;

b. For constituents for which MCLs have not been promulgated, the background concentration, as approved by the director, for the constituent established from wells in accordance with 9 VAC 20-80-250 D 3 a (1), 9 VAC 20-80-260 D 3 a (1) (a), or 9 VAC 20-80-270 D 3 a (1) (a), as applicable; or

c. For constituents for which the background level is higher than the MCL identified under subdivision 7 a of this subsection or health-based levels identified under subdivision 8 of this subsection, the background concentration, as approved by the director.

8. The director may establish an alternate ground water protection standard for constituents for which MCLs have not been established by granting a variance based on the petition submitted by the owner or operator in accordance with 9 VAC 20-80-760.

9. Within 90 days of the completion of actions required under subdivision 6 c of this subsection submit to the department an evaluation of the concentration of any Appendix 5.1 constituents found in the ground water at each monitoring well at the waste management unit boundary. If the concentration of:

a. All Appendix 5.1 constituents are shown to be at or below background values, using the statistical procedures in Appendix 5.4, for two consecutive sampling events, the owner or operator shall notify the director of this finding and may return to Phase I monitoring;

b. Any Appendix 5.1 constituents are above background values, but all concentrations are below the ground water protection standard established under subdivision 7 or 8 of this subsection, using the statistical procedures in Appendix 5.4, the owner or operator shall continue Phase II monitoring;

c. Any Appendix 5.1 constituents show that there is a statistically significant increase above the ground water protection standard established under subdivision 7 or 8 of this subsection specified at any monitoring well at the waste management unit boundary, he may demonstrate that a source other than the unit caused increase or that an error in sampling, analysis, or evaluation was committed. While the owner or operator may make a

demonstration under this subdivision in addition to or in lieu of submitting the information under subdivision 11 of this subsection, he is not relieved of the requirement to submit this information within the time specified in subdivision 11 of this subsection unless the demonstration made under this paragraph successfully shows that a source other than a landfill unit caused the increase or that the increase resulted from error in sampling, analysis, or evaluation. In making a demonstration under this subdivision, the owner or operator shall:

(1) Notify the director in writing within fourteen days of determining a statistically significant increase at the waste management unit boundary that he intends to make a demonstration under subdivision 9 c of this subsection.

(2) Within 90 days, submit a report to the department which demonstrates that a source other than a landfill unit caused the increase, or that the increase resulted from error in sampling, analysis, or evaluation.

(3) Continue to monitor in accordance with the Phase II monitoring program until a decision has been rendered by the department in accordance with subdivision 10 of this subsection.

10. Based on the information submitted in accordance with subdivision 9 c (2) of this subsection, the director will:

a. In case of the demonstrated error in sampling, analysis or evaluation, allow the owner or operator to resume Phase II monitoring program; or

b. Require changes in the ground water monitoring system which will correctly reflect the ground water contamination from the solid waste disposal unit and allow the owner or operator to resume Phase II monitoring program; or

c. Require the owner or operator to commence actions under subdivisions 6 through 9 of this subsection.

11. Within 180 days of the completion of actions under subdivision 9 of this subsection, submit to the department:

a. All data necessary to justify any variance sought for ground water protection levels (see 9 VAC 20-80-760) established in the facility permit; or

b. A plan for corrective action program in accordance with this section necessary to meet the requirements for corrective action.

12. Implement a Phase III monitoring program and initiate corrective action in accordance with the procedures of 9 VAC 20-80-310.

E. Phase III monitoring program. The purpose of the Phase III monitoring program is to support the corrective action undertaken in accordance with 9 VAC 20-80-310.

1. Phase III monitoring is required whenever the corrective action program has been initiated, and shall continue until it is demonstrated that Appendix 5.1 constituents have not exceeded the ground water protection standards for a

~~period of three consecutive years using the appropriate statistical procedures and performance standards. If the post-closure period has not been completed following the three year period, Phase II monitoring will be implemented.~~

~~2 If the owner or operator is engaged in a corrective action program at the end of the minimum post-closure period, the post-closure period is extended until the owner or operator provides the demonstration required under subdivision 1 of this subsection.~~

~~3. Phase III monitoring parameters and constituents shall include all constituents in Appendix 5.1 that are determined to be present at the waste management unit boundary.~~

~~4. The department shall determine an appropriate monitoring frequency and an appropriate set of monitoring wells on a site-specific basis. The following minimum frequencies apply:~~

~~a. Semiannually for those constituents in Appendix 5.1 that were detected in ground water.~~

~~b. Annually for all other Appendix 5.1 parameters (not detected in ground water) unless it is demonstrated that the history of analyses of leachate from the unit indicates that other parameters are not present.~~

~~c. Every two years for those Appendix 5.1 parameters that were not present in the analysis presented in accordance with subdivision 4 b of this subsection.~~

~~5. If the owner or operator determines that there is a statistically significant increase over background for any constituent in subdivision 3 of this subsection at any monitoring well at the waste management unit boundary, he shall:~~

~~a. Notify the department of this finding in writing within 14 days. The notification shall indicate what parameters or constituents have shown statistically significant increases.~~

~~b. Within 90 days, submit to the director the following information:~~

~~(1) An evaluation of the concentration of any Appendix 5.1 constituents found in ground water at each monitoring well or an approved subset of wells at the compliance point.~~

~~(2) Any proposed changes to the ground water monitoring system necessary to meet the requirements of corrective action programs in accordance with 9 VAC 20-80-310.~~

~~(3) Any proposed changes to the monitoring frequency or sampling procedures used at the facility necessary to meet the requirements of corrective action programs in accordance with 9 VAC 20-80-310.~~

~~c. Within 180 days, submit to the department:~~

~~(1) All data necessary to justify any variance sought from the corrective active program; or~~

~~(2) A change to the plan for corrective action program in accordance with 9 VAC 20-80-310 necessary to meet the requirements of the corrective action program specified in these regulations.~~

~~F. Recordkeeping and reporting.~~

~~1. If the ground water is monitored to satisfy the requirements for Phase I monitoring, the owner or operator shall:~~

~~a. Keep records of the analyses required in subdivisions C 2 and C 3 of this appendix, the associated static water level surface elevations required in subdivision C 4 of this appendix, and the evaluations required in subdivision C 5 a of this appendix throughout the active life of the facility and the post-closure care period; and~~

~~b. Report the following ground water monitoring information to the director:~~

~~(1) During the first year when initial background concentrations are being established for the facility: concentrations or values of the parameters for each ground water monitoring well within 15 days after completing each quarterly analysis.~~

~~(2) Annually: concentrations or values of the indicator parameters listed in subdivision C 1 of this appendix for each ground water monitoring well. The owner or operator shall separately identify any statistically significant differences from the background found in the upgradient wells in accordance with subdivision C 5 a (1) of this appendix. During the active life of the facility, this information shall be submitted no later than March 1 following each calendar year.~~

~~(3) No later than March 1 following each calendar year as part of the annual report: results of the evaluations of ground water surface evaluations provided on a potentiometric surface map under subdivision C 4 of this appendix, and a description of the response to that evaluation, where applicable.~~

~~2. If the ground water is monitored to satisfy the requirements of Phase II or Phase III monitoring, the owner or operator shall:~~

~~a. Keep records of the analyses and evaluations throughout the active life of the facility, and throughout the post-closure care period as well; and~~

~~b. Annually, until final closure of the facility, submit to the director a report containing the results of his ground water quality assessment program which includes, but is not limited to, the calculated or measured rate of migration of solid waste constituents in the ground water during the reporting period, and a potentiometric surface map of one of the reported monitoring events. This information shall be submitted no later than March 1 following each calendar~~ year

PART VI.

Other Solid Waste Management Facility Standards

9 VAC 20-80-330. Compost facilities.

A. General.

1. The standards in this section shall apply to the siting, design and construction, and operation of facilities producing compost from refuse or combinations of refuse and sludges or animal manures.

a. Composting facilities may be classified in accordance with the general process used. Facilities that employ the enclosed vessel method are called Type A (“confined”) compost facilities. Type B facilities are those that employ the windrow or aerated static pile method. If the process requires materials to be stabilized or cured in piles such facilities are also classified as Type B facilities even if the composting is performed in an enclosed vessel. The only composting processes that may be employed are those with prior operational performance in the United States. Any other proposed composting process shall conform to the standards contained in 9 VAC 20-80-470 and will require an experimental solid waste management facility permit.

NOTE: Finished compost that meets the requirements of this part is not regulated as a solid waste.

b. Use of solid waste containing hazardous waste, regulated medical waste, or nonbiodegradable waste is prohibited.

2. The standards contained in this section are not applicable to facilities that operate under a permit-by-rule issued under Vegetative Waste Management and Yard Waste Composting Regulations (9 VAC 20-101-10 et seq.) and are in full compliance with that chapter.

3. The standards contained in this section are not applicable to composting units exempt under 9 VAC 20-80-60 D 2 or D 3.

4. The feedstocks for composting are classified on the basis of the type of waste used in the composting process. The categories of feedstocks are as follows:

a. Category I—Pre-consumer, plant or plant-derived materials such as:

(1) Agriculture crop residues including but not limited to harvesting residuals, straw, and cornstalks;

(2) Livestock feed including but not limited to hay, grain, silage, cottonseed meal, soybean meal;

(3) Nonfood agricultural processing waste including but not limited to cotton gin trash, wool carding residue, field corn cobs;

(4) Source-separated pre-consumer food wastes including but not limited to wholesale and retail market residuals (e.g., overripe, damaged, or otherwise rejected fruit or vegetables) and institutional kitchen culls;

(5) Food processing wastes including culls, peelings, hulls, stems, pits, seed, pulp, shucks, nut shells, apple pomace, corn cobs, cranberry filter cake, olive husks, potato tops, cocoa shells, fruit and vegetable processing waste, rejected products, and bakery wastes; and

(6) Source-separated clean waste paper.

b. Category II—Animal-derived waste material such as:

(1) Dairy and fish processing wastes including but not limited to eggs, spoiled milk, cheese, curd, and yogurt, fish gurry and racks, clam bellies, fish shells, fish processing sludge, fish breading crumbs, mussel, crab, lobster, and shrimp wastes; and

(2) Rendered animals.

c. Category III—Animal and post-consumer food wastes with pathogen potential such as:

(1) Source-separated wastes including but not limited to restaurant waste, institutional kitchen wastes, food preparation wastes, prepared but unserved foods, plate scrapings; and

(2) Animal manures including but not limited to spoiled stable straw bedding, livestock feedlot, holding pen and cage scrapings, dairy manure semi-solids, poultry litter and manure.

d. Category IV—Other wastes such as:

(1) Non-rendered animal meat waste including but not limited to animal carcasses, slaughterhouse waste, paunch manure;

(2) Mixed non-source separated organic wastes including but not limited to municipal solid waste; and

(3) Sewage sludge.

B. Siting.

1. Solid waste composting facilities shall not be sited or constructed in areas subject to base floods.

2. No facility shall be closer than 50 feet to any regularly flowing stream.

3. Composting facilities shall be adjacent to or have direct access to roads which are paved or surfaced and capable of withstanding anticipated load limits.

4. A facility shall not be located within 200 feet of any residential area, a health care facility, school, recreational park area, or similar type public institution.

5. Sites shall allow for sufficient room to minimize traffic congestion and allow for safe operation.

6. No composting unit shall extend closer than 50 feet to any property line.

7. Acceptable sites must have sufficient area and terrain to allow for proper management of leachate.

8. Type B facilities shall not be located in areas which are geologically unstable or where the site topography is heavily dissected.

9. A Type B facility shall not be located in any area where the seasonal high water table lies within two feet of the ground surface.

C. Design/construction.

1. Facilities for the composting of municipal solid waste shall be provided with covered areas for receiving, segregation, and grading of municipal solid waste.

2. Where Category IV material is processed, or where more than 700 tons/quarter of Category I, II, or III material is processed, by a compost facility, all receiving, mixing, composting, curing, screening, and storing operations shall be provided with either:

a. An asphalt or concrete area that drains directly to a wastewater storage, treatment, or disposal facility; or

b. An asphalt, or concrete, and diked or bermed area to prevent entry of run-on or escape of run-off, leachate, or other liquids, and a sump with either a gravity discharge or an adequately sized pump located at the low point of the hard-surfaced area to convey liquids to a wastewater treatment, disposal or holding facility, discharged under a VPDES permit issued pursuant to the State Water Control Board regulation 9 VAC 25-31-10 et seq. or recirculated within the composting process.

3. Area and appropriate equipment shall be provided to segregate nonbiodegradable or otherwise undesirable components from the municipal solid waste to be processed.

4. For Type B facilities, sound engineering controls shall be incorporated into design of facilities located on sites with:

a. Springs, seeps, and other ground water intrusions;

b. Gas, water, or sewage lines under the active areas; or

c. Electrical transmission lines above or below the active areas.

5. Roads serving the unloading, composting, and storage areas shall be of all-weather construction.

6. Auxiliary power, standby equipment, or contingency arrangements shall be required to ensure continuity of composting operations.

7. For uncovered sites, calculations for sizing of surface water control features will be based on a rainfall intensity of one-hour duration and a 10-year return period.

D. Operations.

1. Noncompostable or other undesirable solid waste shall be segregated from the material to be composted. Solid waste which is not composted, salvaged, reused, or sold must be disposed of at an appropriately permitted solid waste management facility.

2. Product testing and standards. Products will continue to be considered as solid wastes until the testing indicates that they attain appropriate standards. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity and shall be conducted in a manner consistent with SW-846 and other applicable standards. ~~A~~ The minimum number of samples that shall be collected and analyzed is shown in the table below. Samples to be analyzed for metals shall be composited prior to the analysis.

Minimum Frequency for Metals Analysis

Average compost produced (dry tons per day)	Frequency of Analyses	Number of Samples
Less than 1	Annually	12 (1 sample/month composited for metals)
1 to 10	Quarterly	3 (1 sample/month composited for metals)
over 10	Monthly	4 (1 sample/week composited for metals)

a. Compost stability. All finished products will be tested for compost stability using one of the methods listed below.

(1) Temperature decline to near ambient conditions when not the result of improper management of the composting process. Composting records shall indicate appropriate schedules for turning, monitoring of moisture within the required range, and an appropriate mix of composting feedstocks. This method may only be used for Type A facilities receiving Category I materials or Type B facilities that receive less than 700 tons per calendar quarter of Category I materials.

(2) Reheat potential using the Dewar Compost Self-Heating Flask. The results must indicate a stable product.

(3) Specific oxygen uptake. To be classified as stable the product must have a specific oxygen uptake rate of less than 0.1 milligrams per gram of dry solids per hour.

(4) Solvita™ Compost Maturity Test. To be classified as stable the product must exhibit color equal or greater than six.

(5) Carbon dioxide evolution. To be classified as stable the product must not evolve more than 1,000 milligrams of carbon dioxide per liter per day.

b. Pathogens. In addition to testing required by subdivision 2 a of this subsection, finished products produced from Category III and IV materials will be tested for the presence of the following organisms using the methods indicated below.

(1) Viruses. No infective viruses shall be detected by an acceptable laboratory method with a minimum detection limit of 0.1 to 0.25 PFU (plaque forming unit) per gram of dry solids or less.

(2) Parasites. No viable Ascaris ova shall be detected by an acceptable laboratory method with a minimum detection limit of 0.5 viable ova per gram of dry solids or less. Ascaris will be considered to be representative of all parasites, i.e., helminth ova and protozoan cysts.

(3) Bacterial pathogens. Salmonella will be considered representative of all bacterial pathogens capable of regrowth. Median of all samples shall be less than 1 MPN (most probable number) per gram of dry solids. No more than 10% of samples shall exceed 10 MPN per gram of dry solids. No single sample shall exceed 100 MPN per gram of dry solids.

(4) Fecal coliform. Although the coliform group is not generally considered to be pathogenic, their destruction is indicative of good composting practice. Median of all samples shall be less than 10 MPN fecal coliform per gram of dry solids. Specifically, less than 1,000 MPN fecal coliform per gram of dry solids shall be found in any sample when incubated for 0.5 hr at 70°C, three days at 55°C, or five days at 53°C.

(5) Other test methods, or facility operating standards as approved by the director.

c. Metals. In addition to the requirements contained in subdivisions 2 a and 2 b of this subsection, all finished products produced from Category IV materials shall be analyzed for the metals shown below. The concentration of contaminants shall not exceed the following levels:

Metal	Concentration, mg/kg dry solids
Arsenic	41
Cadmium	21
Copper	1500
Lead	300
Mercury	17
Molybdenum	54
Nickel	420
Selenium	28
Zinc	2,800

3. Designed buffer zones shall be maintained.

4. The owner or operator shall prepare an operation plan which shall include as a minimum:

a. The description of types of wastes that will be managed at the facility. This description will be sufficient to properly categorize the compost feedstocks in accordance with subdivision A 4 of this section. If the specific materials are not listed in that section, a discussion will be prepared which compares the materials that the facility will receive with the materials listed in the appropriate feedstock category and justifies the categorization of the proposed feedstock. For each type of material an approximate C:N ratio will be provided. The expected quantity of any bulking agent or amendment will be provided (if applicable); and any expected recycle of bulking agent or compost. The plan shall include the annual solid waste input, the service area population (both present and projected if applicable), and any seasonal variations in the solid waste type and quantity;

b. A discussion of the composting process including:

(1) For Type A compost facilities the following will be provided:

(a) A copy of the manufacturer’s operating manual, and drawings and specifications of the composting unit will be provided.

(b) A discussion of the unit’s requirements for power, water supply, and wastewater removal, and the steps taken to accommodate these requirements.

(2) For Type B compost facilities the following will be provided:

(a) A description of the configuration of the composting process including compost pile sizing, and orientation, provisions for water supply, provisions for wastewater disposal, and an equipment list.

(b) A discussion of procedures and frequency for moisture, and temperature monitoring, and aeration.

(c) A discussion of pile formation, and feedstock proportioning and feedstock preparation.

c. A discussion of the method and frequency of final product testing in accordance with subdivision 2 of this subsection will be provided;

d. A schedule of operation, including the days and hours that the facility will be open, preparations before opening, and procedures followed after closing for the day;

e. Anticipated daily traffic flow to and from the facility, including the number of trips by private or public collection vehicles;

f. The procedure for unloading trucks (including frequency, rate, and method);

g. A contingency plan detailing corrective or remedial action to be taken in the event of equipment breakdown; air pollution (odors); unacceptable waste delivered to the facility; spills; and undesirable conditions such as fires, dust, noise, vectors, and unusual traffic conditions;

h. Special precautions or procedures for operation during wind, heavy rain, snow, and freezing conditions;

i. A description of the ultimate use for the finished compost, method for removal from the site, and a plan for use or disposal of finished compost that cannot be used in the expected manner due to poor quality or change in market conditions;

j. A discussion of inspections in accordance with subdivision 5 c of this subsection; and

k. A discussion of records to be maintained in accordance with subdivision 6 of this subsection.

5. Maintenance.

a. Facility components shall be maintained and operated in accordance with the permit and intended use of the facility.

b. Adequate numbers, types and sizes of properly maintained equipment shall be available at the facility during all hours of operation to prevent curtailment of operations because of equipment failure except under extraordinary conditions beyond the control of the facility's owner or operator.

c. Self inspection. The facility owner or operator shall monitor and inspect the facility for malfunctions, deteriorations, operator errors, and discharges that may cause a release to the environment or a threat to human health. The facility owner or operator shall promptly remedy any deterioration or malfunction of equipment or structures or any other problems revealed by the inspections to ensure that no environmental or human health hazard develops. Where a hazard is imminent or has already occurred, remedial action shall be taken immediately.

6. Recordkeeping.

a. Operational records shall be maintained at the facility; these records shall include, at the minimum, temperature data and quantity of materials processed.

b. The facility owner or operator shall retain records of all unauthorized solid waste accepted identifying the waste and its final disposition. Such records shall include the date solid waste was received, the type of solid waste received, the date of disposal, the disposal method and location.

c. The facility owner or operator shall record self-inspections in an inspection log. These records shall be retained for at least three years from the date of inspection. They must include the date and time of the inspection, the name of the inspector, a description of the inspection including the identity of specific equipment and structures inspected, the observations recorded, and the date and nature of any remedial actions implemented or repairs made as a result of the inspection.

d. The facility owner or operator shall retain records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation; and copies of all reports required by, or by a permit issued under, this part) for a period of at least three years from the date of the sample analysis, measurement, report or application. Records for monitoring information shall include: the date, exact place, and time of sampling or measurements; the name of the individual who performed the sampling and measurement; the date analyses were performed; the name of the individual who performed the analyses; the analytical techniques or methods used; and the result of such analyses. Additional information relating to the analysis, including records of internal laboratory quality assurance and control, shall be made available to the department at its request.

E. Closure.

1. Closure standards. 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, or to the atmosphere.

a. At closure, the owner or operator shall remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated subsoils, and structures and equipment contaminated with waste and leachate.

b. If, after removing or decontaminating all residues and making all reasonable efforts to effect removal or decontamination of contaminated components, subsoils, structures, and equipment as required in subdivision 1 a of this subsection, the owner or operator finds that not all contaminated subsoils can be practicably removed or

decontaminated, he shall install a ground water monitoring system, close the facility and perform post-closure care in accordance with the ground water monitoring, closure and post-closure care requirements of Part V (9 VAC 20-80-240 et seq.) of this chapter.

2. Closure plan and amendment of plan.

a. The owner or operator of a compost facility shall have a written closure plan. This plan shall identify the steps necessary to completely close the facility at its full operation under the permit conditions. The closure plan shall include, at least a schedule for final closure including, 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. The amended closure plan shall be placed in the operating record.

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

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

3. Time allowed for closure. 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. The owner or operator shall post one sign 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 delivered.

5. Inspection. The department shall inspect all solid waste management facilities that have been closed to determine if the closing is complete and adequate. It shall notify the owner of a closed facility, in writing, if the closure is satisfactory, and shall order necessary construction or such other steps as may be necessary to bring unsatisfactory sites into compliance with this chapter.

9 VAC 20-80-340. Solid waste transfer stations.

A. Applicability.

1. The siting, design, construction, and operation of a solid waste transfer station shall be governed by the standards as set forth in this section.

2. Storage of nonhazardous solid wastes and hazardous wastes, or hazardous wastes from conditionally exempt small quantity generators as defined in Virginia Hazardous Waste Management Regulations (9 VAC 20-60-10 et seq.) at a transportation terminal or transfer station in closed containers meeting the U.S. Department of Transportation specifications is exempt from this section and Part VII (9 VAC 20-80-480 et seq.) of this chapter provided such wastes are removed to a permitted storage or disposal facility within ten days from the initial receipt from the waste generator. To be eligible for this exemption, each shipment must be properly documented to show the name of the generator, the date of receipt by the transporter and the date and location of the final destination of the shipment. The documentation shall be kept at the terminal for at least three years after the shipment has been completed and shall be made available to the department upon request. All such activities shall comply with any local ordinances.

3. Any material from a state other than Virginia that is classified as a hazardous waste in that state shall be managed in accordance with 9 VAC 20-60-10 et seq. Such wastes are not acceptable for treatment or storage in a solid waste management facility in the Commonwealth.

B. Siting.

1. Solid waste transfer stations shall be adjacent to or have direct access to roads which are paved or surfaced and capable of withstanding anticipated load limits.

2. Solid waste transfer stations shall not be sited or constructed in areas subject to base floods.

3. No solid waste transfer station shall be closer than:

a. Fifty feet to any surface stream;

b. Fifty feet to any property line; or

c. Two hundred feet to any residential area, health care facility, school or recreational park area, or similar type public institution.

4. Sites shall allow for sufficient room to minimize traffic congestion and allow for safe operation.

C. Design/construction.

1. An all-weather road suitable for loaded collection vehicles shall be provided from the entrance gate to the unloading, receiving or tipping area.

2. The floors in the unloading, receiving, or tipping areas shall be constructed of easily cleanable materials, provided with a water supply for transfer area cleaning purposes, and equipped with drains or pumps, or equivalent means to facilitate the removal of wastewater to proper storage or disposal.

3. Truck wheel curbs or other safety facilities shall be provided to prevent backing or falling into a pit if one is used for tipping.

4. The transfer unloading, receiving, tipping, and storage structures, buildings, and ramps shall be of a material that can be easily cleaned.

5. Sufficient on-site queuing capacity shall be provided for the expected traffic so that the waiting collection vehicles do not back up onto the public road.

6. Portions of the transfer station used solely for storage of household hazardous waste shall have a containment system designed in accordance with 9 VAC 20-60-820 F of the Virginia Hazardous Waste Management Regulations. The requirements of this section do not apply to household hazardous waste packaged in U.S. Department of Transportation approved shipping containers and removed from the site within 10 days from the date of collection.

7. If the transfer station is used to store waste materials, storage units shall be designed to reduce the potential for fires and migration of vectors, and to prevent escape of wastes, washwaters, odors, dust, and litter from the facility.

D. Operation.

1. No uncontainerized solid waste shall remain at the transfer station at the end of the working day.

2. A written operating plan shall be prepared covering at the minimum:

a. Facility housekeeping, procedures for detection of regulated hazardous and medical wastes, on-site traffic control, schedules for waste delivery vehicle flow, wastewater collection, storm water collection, vector control, odor control, noise control, and methods of enforcement of traffic flow plans for the waste delivery vehicles;

b. The rated capacity of the facility, the capacities of any waste storage areas, and the ultimate disposal location for all facility generated waste residue.

3. A written contingency plan shall be prepared for a transfer station covering operating procedures to be employed during periods of non-operation. This plan shall set forth procedures to be employed in the event of equipment breakdown which will require standby equipment, extension of operating hours, or diversion of solid waste to other facilities.

4. Leachate and washwater from a transfer station shall not be permitted to drain or discharge into surface waters except when authorized under a VPDES permit issued pursuant to 9 VAC 25-31-10 et seq.

5. No regulated hazardous wastes shall be accepted for processing unless they are received under the provisions of a hazardous waste permit or they are specifically exempted by the provisions of the Virginia Hazardous Waste Management Regulations (9 VAC 20-60-10 et seq.). Storage of household hazardous waste at facilities designed in accordance with subdivision C 6 of this section shall be accomplished in accordance with requirements of 9 VAC 20-60-820 B through E, G, and H. Storage in such facilities may not exceed one year.

E. Closure.

1. Closure standards. 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, or to the atmosphere.

a. At closure, the owner or operator shall remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated subsoils, and structures and equipment contaminated with waste and leachate.

b. If, after removing or decontaminating all residues and making all reasonable efforts to effect removal or decontamination of contaminated components, subsoils, structures, and equipment as required in subdivision 1 a of this subsection, the owner or operator finds that not all contaminated subsoils can be practicably removed or decontaminated, he shall install a ground water monitoring system, close the facility and perform post-closure care in accordance with the ground water monitoring, closure and post-closure care requirements of Part V (9 VAC 20-80-240 et seq.) of this chapter.

2. Closure plan and amendment of plan.

a. The owner or operator of a transfer station shall have a written closure plan. This plan shall identify the steps necessary to completely close the facility at its full operation under the permit conditions. The closure plan shall include, at least a schedule for final closure including, 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 with the approval of the department 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 director whenever an amended closure plan has been prepared and placed in the operating record.

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

e. The owner or operator shall provide to the department a certification from a registered professional engineer that the facility has been closed in accordance with the closure plan.

3. Time allowed for closure. 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. The owner or operator shall post one sign 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 delivered.

5. Inspection. The department shall inspect all solid waste management facilities 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 necessary construction or such other steps as may be necessary to bring unsatisfactory sites into compliance with this chapter.

9 VAC 20-80-370. Energy recovery and incineration facilities.

A. Applicability.

1. The siting, design, construction, and operation of the solid waste and process residue storage and handling facilities associated with the energy recovery from or incineration of solid wastes shall be governed by the standards as set forth in this section.

2. The regulations of this section do not apply to:

a. Design and operation of the combustor units regulated by the State Air Pollution Control Board; or

b. The disposal of residues from the energy recovery or incineration facilities which is regulated under Part V (9 VAC 20-80-240 et seq.) of this chapter.

B. Siting.

1. Energy recovery and incineration facilities shall be adjacent to or have direct access to roads which are paved or surfaced and capable of withstanding anticipated load limits.

2. Energy recovery and incineration facilities shall not be sited or constructed in areas subject to base floods.

3. No facilities for storage or handling of unconverted solid waste or combustion residues shall extend closer than:

a. Fifty feet to any surface stream;

b. Fifty feet to any property line; or

c. Two hundred feet to any residential area, health care facility, school or recreational park area, or similar type public institution.

4. Sites shall allow for sufficient room to minimize traffic congestion and allow for safe operation.

C. Design/construction.

1. The solid waste and combustion residue storage and handling facilities associated with an energy recovery or incineration system shall be designed to reduce the potential of elements which may degrade health or the environment from crossing the facility boundaries. Such elements include fire, vectors, wash water, odor, and litter.

2. An all-weather road suitable for loaded delivery vehicles shall be provided from the entrance gate to the unloading, receiving, or tipping area.

3. All tipping floors, sorting pads, waste storage areas, bunkers and pits shall be constructed of concrete or other similar quality material that will withstand heavy vehicle usage. Floor drains shall be provided in all such area and surfaces shall be appropriately graded to facilitate washdown operations. Floor drains shall be designed to discharge wastewater into a collection system for proper disposal. In those cases where waste or residue storage pits are to be utilized, the base and sidewalls shall be designed to prevent ground water intrusion.

4. Truck wheel curbs or other safety facilities shall be provided to prevent backing or falling into a pit if one is used for tipping.

5. The unloading, receiving, and tipping structures, buildings, and ramps shall be of material that can be easily cleaned.

6. Facilities shall be designed with sufficient internal storage area for unprocessed incoming solid waste, facility process waste residues and effluents, and recovered materials, if applicable. The design shall allow for, at a minimum, three days of storage at maximum anticipated loading rates.

7. The facility shall be designed in a manner which will prevent the migration of odors and dust off-site.

8. Sufficient on-site queuing capacity shall be provided for the expected traffic so that the waiting delivery vehicles do not back up onto the public road.

9. Fire alarm and protection systems capable of detecting, controlling and extinguishing any and all fires shall be provided.

10. Facilities shall be designed with perimeter security fencing and gate controls to prevent unauthorized access to the site and to control the off-site escape of litter.

11. A design description manual will be prepared and submitted to the department describing or showing:

a. The rated capacity of the facility;

b. The designation of normal loading, unloading and storage areas and their capacities;

c. The designation of emergency loading, unloading, storage or other disposal capabilities to be used when the facility system down-time exceeds 24 hours;

d. The designation of alternate disposal areas or plans for transfer of solid wastes in the event facility down-time exceeds 72 hours;

e. The expected daily quantity of waste residue generation;

f. The proposed ultimate disposal location for all facility-generated waste residues including, but not limited to, ash residues and by-pass material, by-products resulting from air pollution control devices, and the proposed alternate disposal locations for any unauthorized waste types, which may have been unknowingly accepted. The schedule for securing contracts for the disposal of these waste types at the designated locations shall be provided;

g. A descriptive statement of any materials use, reuse or reclamation activities to be operated in conjunction with the facility, either on the incoming solid waste or the ongoing residue;

h. Plan views showing building dimensions, building setbacks, side and rear distances between the proposed structure and other existing or proposed structures, roadways, parking areas and site boundaries;

i. Interior floor plans showing the layout, profile view and dimensions of the processing lines, interior unloading, sorting, storage and loading areas as well as other functional areas.

~~12. A waste supply analysis program characterizing the quantity and composition of the solid waste in the service area shall be submitted. The waste characterization shall be performed by utilizing a statistically relevant plan which justifies the population sample. The sampling program shall provide for seasonal fluctuations in the quantity and composition of the waste types to be handled at the facility. Anticipated changes in solid waste quantity and composition for each of the waste types to be serviced by the proposed facility shall be projected for that term reflecting anticipated facility life. Within this framework, the effect of existing or future source separation programs on the supply of solid waste within the service area shall be described and quantified. Quantity and compositions analyses shall be carried out simultaneously where possible and shall provide information relating to anticipated maximum, minimum and average daily loading in accordance with the following:~~

~~a. The composition data for the non-combustible solid waste, indicating percent by weight and percent by volume, generated within the service area shall be defined within the following framework:~~

~~(1) Aluminum;~~

(2) Ferrous metals;

(3) Other non-ferrous metals;

(4) Glass;

(5) Ceramics and fines; and

(6) Oversize bulky items.

b. The composition data for combustible solid waste, indicating percent by weight by volume, generated within the service area shall be defined for the following:

(1) Paper products;

(2) Plastics;

(3) Wood;

(4) Yard wastes;

(5) Food wastes; and

(6) Textiles, rubber, leather and other combustibles.

c. The composition data for the proximate analysis of the solid waste, indicating percent by weight, generated within the service area shall be defined for the following:

(1) Total moisture;

(2) Ash (including percent by volume);

(3) Volatiles;

(4) Fixed carbon; and

(5) Heating value in BTU/pound on an as-received and moisture-free basis.

d. The composition data for the ultimate analysis of the solid waste, indicating percent by weight, generated within the service area shall be defined for the following:

(1) Ash;

(2) Carbon;

(3) Chlorine;

(4) Hydrogen;

(5) Nitrogen;

(6) Oxygen; and

(7) Sulfur;

~~e. The quantity data for the solid waste generated within the service area shall be defined by weight, volume and corresponding load density characteristics expressed in terms of daily, average, peak and minimum flow to the facility.~~

D. Operation.

1. Unprocessed incoming waste, facility process waste residues and effluents, and recovered materials, if applicable, shall be stored in bunkers, pits, bins, or similar containment vessels and shall be kept at all times at levels that prevent spillage or overflow. Any waste materials temporarily stored on the facility's tipping floor shall be stored as stated above by the end of the working day, or other time frame approved by the director.

2. A written operating plan shall be prepared covering at the minimum facility housekeeping, on-site traffic control, schedules for waste delivery vehicle flow, wastewater collection, storm water collection, vector control, odor control, noise control, and methods of enforcement of traffic flow plans for the waste delivery vehicles.

3. The owner or operator shall implement waste receiving area control procedures that provide for the inspection of the incoming waste stream for the purpose of removing unprocessible or potentially explosive materials prior to the initiation of processing. In addition, the inspection shall effectively prevent the acceptance of unauthorized waste types. A minimum of 1% of the incoming loads of waste shall be inspected. In addition, if the facility receives waste generated outside of Virginia and the regulatory structure in that state allows for the disposal of wastes at landfills or the incineration of wastes that Virginia's laws and regulations prohibit or restrict, a minimum of 10% of the incoming loads of waste from those states shall be inspected. All facilities receiving waste generated outside of Virginia shall submit an evaluation consistent with 9 VAC 20-80-113 D. These procedures and necessary contingency plans shall be incorporated into the approved operating plan.

4. A written contingency plan shall be prepared for an energy recovery facility covering operating procedures to be employed during periods of non-operation. This plan shall set forth procedures to be employed in the event of equipment breakdown which will require standby equipment, extension of operating hours, or diversion of solid waste to other facilities.

5. Leachate and washwater from an energy recovery facility shall not be permitted to drain or discharge into surface waters except when authorized under a Virginia-NPDES Permit issued pursuant to the State Water Control Board Regulation (9 VAC 25-31-10 et seq.) NPDES program or otherwise approved by that agency.

6. No hazardous wastes shall be accepted for processing unless they are specifically exempted by the provisions of the Virginia Hazardous Waste Management Regulations (9 VAC 20-60-10 et seq.).

7. Arrangements for disposal of facility-generated waste shall be established and maintained throughout the life of the energy recovery or incineration facility.

8. Chemical analyses of residues.

a. The owner or operator shall perform a chemical analyses of all residual ash, in accordance with the conditions of the solid waste management facility permit and current solid waste management regulations.

b. Samples and measurements taken for this purpose shall be representative of the process or operation and shall be performed in accordance with the procedures outlined in the most recent edition of “Test Methods for Evaluating Solid Waste—Physical/Chemical Methods,” EPA publication SW-846. At a minimum the sampling shall include analyses for toxicity and shall be performed at the frequency specified in the facility’s permit.

c. The department may require the operator to perform additional analyses on ash removed from exhaust gases and collected by emission control equipment, at a frequency established by the department in the facility’s permit.

d. A report containing the following information shall be submitted to the department within 90 days of sample collection:

(1) The date and place of sampling and analysis;

(2) The names of the individuals who performed the sampling and analysis;

(3) The sampling and analytical methods utilized;

(4) The results of such sampling and analyses; and

(5) The signature and certification of the report by an appropriate authorized agent for the facility.

E. Closure.

1. Closure standards. 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, or to the atmosphere.

a. At closure, the owner or operator shall remove or decontaminate all waste residues, contaminated containment system components, and structures and equipment contaminated with waste and leachate.

b. If, after removing or decontaminating all residues and making all reasonable efforts to effect removal or decontamination of contaminated components, structures, and equipment as required in subdivision 1 a of this subsection, the owner or operator finds that not all contaminated subsoils can be practicably removed or decontaminated, he shall close the facility and perform post-closure care in accordance with the closure and post-closure care requirements of Part V of this chapter.

2. Closure plan and amendment of plan.

a. The owner or operator of an energy recovery facility shall have a written closure plan. This plan shall identify the steps necessary to completely close the facility at its full operation under the permit conditions. The closure plan shall include at least a schedule for final closure including, 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. Unless the director has previously approved the closure plan, the owner or operator shall notify the director that a closure plan or an amended closure plan has been prepared and placed in the operating record no later than October 9, 1993, or by the date of closure plan amendment, whichever is later.

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

3. Time allowed for closure. 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. The owner or operator shall post one sign 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.

9 VAC 20-80-460. Landfill mining.

A. Because of the varied and experimental nature of the landfill mining processes currently employed, 9 VAC 20-80-470 offers the most appropriate management standards. For this reason, appropriate portions of that section shall be made applicable to the mining process.

B. In addition to fulfilling appropriate requirements of 9 VAC 20-80-470, the owner or operator of a landfill mining facility shall prepare an operational plan which will describe in detail the procedures that will be employed in opening the closed landfill areas, the phased description of opened areas, the procedures that will be employed in excavation of opened areas, the management of excavated materials, and disposition of recovered materials and unusable residues. The

operational plan shall also contain an estimate of the duration of the mining process and the final use of the recovered air space.

C. In cases where residues will be disposed of on site, the disposal units shall be regulated under Part V (9 VAC 20-80-240 et seq.) of this chapter.

PART VII.

PERMITTING OF SOLID WASTE MANAGEMENT FACILITIES.

9 VAC 20-80-485. 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 (9 VAC 20-80-480 et seq.) of this chapter, except 9 VAC 20-80-500 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 9 VAC 20-80-500 B;

b. Provides the director with a certification that the facility meets the siting standards of 9 VAC 20-80-340 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 9 VAC 20-80-340 C;

d. Submits to the director an operational plan describing how the standards of 9 VAC 20-80-340 D will be met;

e. Submits to the director a closure plan describing how the standards of 9 VAC 20-80-340 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 Facilities (9 VAC 20-70-10 et seq.); and

g. Submits to the director the results of the public participation effort conducted in accordance with the requirements contained in subdivision 5 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 9 VAC 20-80-500 B;

b. Provides the director with a certification that the facility meets the siting standards of 9 VAC 20-80-360 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 9 VAC 20-80-360 C, as applicable;

d. Submits to the director an operational plan describing how the standards of 9 VAC 20-80-360 D, as applicable, will be met;

e. Submits to the director a closure plan describing how the standards of 9 VAC 20-80-360 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 Facilities (9 VAC 20-70-10 et seq.);

g. Submits to the director the results of the public participation effort conducted in accordance with the requirements contained in subdivision 5 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 9 VAC 20-80-700 will be met.

i. 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 9 VAC 20-80-500 B;

b. Provides the director with a certification that the facility meets the siting standards of 9 VAC 20-80-370 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 9 VAC 20-80-370 C, as applicable; and

d. Submits to the director an operational plan describing how the standards of 9 VAC 20-80-370 D, as applicable, will be met.

e. Submits to the director a closure plan describing how the standards of 9 VAC 20-80-370 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 Facilities (9 VAC 20-70-10 et seq.); 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.

h. 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 9 VAC 20-80-700 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 9 VAC 20-80-500 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 9 VAC 20-80-330 A 4;

c. Provides the director with a certification that the facility meets the siting standards of 9 VAC 20-80-330 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 9 VAC 20-80-330 C;

e. Submits to the director an operational plan describing how the standards of 9 VAC 20-80-330 D will be met;

f. Submits to the director a closure plan describing how the standards of 9 VAC 20-80-330 E will be met;

g. Submits to the director the proof of financial responsibility if required by the Financial Assurance Regulations for Solid Waste Facilities (9 VAC 20-70-10 et seq.); and

h. Submits to the director the results of the public participation effort conducted in accordance with the requirements contained in subdivision 5 of this subsection.

5. 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 5 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 5 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 5 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.

6. 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 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 (9 VAC 20-80-320 et seq.) and Part VIII (9 VAC 20-80-630 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.

7. 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 9 VAC 20-70-10 et seq. 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.

8. 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, or 4, as applicable, and 5 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 Facilities (9 VAC 20-70-10 et seq.).

9. 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 9 VAC 20-80-80 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.

10. 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; or

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.

<u>d. The operation of the facility is inconsistent with the facilities operations manual and the operational requirements of the regulations.</u>

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 9 VAC 20-80-470, 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.

9 VAC 20-80-500. 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 ~~a current disclosure statement as shown in Appendix 7.1~~ 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. ~~For the convenience of the regulated community, a certification form in shown in Appendix 7.2~~ DEQ Form SW-11-1 (Request for Local Government Certification) is provided for the use of the regulated community.

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 9 VAC 20-130-10 et seq. and certifying that such localities will be allowed to contract for and reserve disposal capacity in the facility.

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 from the local governing body will be required if 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 9a or subdivision 9b 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. Information demonstrating that there is a need for the additional capacity, which considers the following:

(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. 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 9 VAC 20-130-165; or

(2) The available permitted disposal capacity is less than 20 years in either:

(a) The planning region(s) immediately contiguous to the planning region of the host community.

(b) The facilites within a 75 mile radius of the proposed facility.

10. All facilities, in order to solicit comments from local governments outside of the host community, will submit a notification to all geographically contiguous jurisdictions and jurisdictions included in the local solid waste management plan. The notification will contain the nature and location of the facility, the date and location of the public hearing if applicable under the provisions of subdivision B 5 of this subsection, and will request comments on the impacts of the facility. The notification will be submitted to the chief administrative officer of the host community. Documentation of these activities and any comments received during public participation will be submitted to the department.

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 9 VAC 20-80-510 to the director.

2. The Part A application will be reviewed for completeness. The applicant will be notified within fifteen days whether the application is administratively complete or incomplete. If complete information is not provided within thirty days after the applicant is notified, the application will be returned to the applicant without further review.

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 (9 VAC 20-80-510 F), the landfill impact statement (9 VAC 20-80-510 H 1) and the adequacy of transportation facilities (9 VAC 20-80-510 G). The director may also consider other factors at his discretion.

~~4.~~ 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 ~~director~~ department a Part B application to include the required documentation for the specific solid waste management facility as provided for in 9 VAC 20-80-520, 9 VAC 20-80-530, or 9 VAC 20-80-540. The Part B application and supporting documentation shall be submitted in three copies and must include the financial assurance documentation as required by 9 VAC 20-70-10 et seq. 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 9 VAC 20-80-580.

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. A notice of the availability of the proposed draft permit shall be made in a newspaper with general circulation in the area where the facility is to be located. 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. The department shall hold 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 the facility is to be located. A comment period shall extend for a 15-day period after the conclusion of the public hearing.

4. 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. 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 9 VAC 20-80-580), issuance of the permit as drafted, or amendment of the draft permit and issuance.

6. 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 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 9 VAC 20-80 580 A 6.

7. 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.

9 VAC 20-80-510. 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 ~~G~~ I of this section~~, the Part A application form shown in Appendix 7.3 with all~~. All pertinent information and attachments required by this section are provided on DEQ Form SW 7-3 (Pat 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 (9 VAC 20-80-240 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 (9 VAC 20-80-320 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 which 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.

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 5 miles of the facility.

~~G~~ 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 and/or the subsequent use of solid waste, 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.

9 VAC 20-80-530. Part B permit application requirements for energy recovery and incineration facilities.

Owners or operators of energy recovery, thermal treatment, and incineration facilities regulated under 9 VAC 20-80-370 who do not dispose of solid wastes on-site and who will remove all solid wastes or solid waste residues at closing, will use the application procedures of this section. The following information is required in a Part B permit application:

A. Design plans. Design plans shall be prepared by a person or firm registered to practice professional engineering in the Commonwealth. The plans shall demonstrate compliance with 9 VAC 20-80-370, as applicable, and include at least the following:

1. Existing site conditions plans sheet indicating site conditions prior to development.

2. Engineering modification plan sheet indicating the appearance of the site after installation of engineering modifications. More than one plan sheet may be required for complicated sites.

3. Phasing plan sheets showing the progression of site development through time. At a minimum, a separate plan shall be provided for initial site preparations and for each subsequent major phase or new area where substantial site preparation must be performed. Each such plan shall include a list of construction items and quantities necessary to prepare the phase indicated.

4. Design drawings of the solid waste management facility to include:

a. Profile and plan views of all structures and enclosures showing dimensions. Plan views showing building setbacks, side and rear distances between the proposed structure and other existing or proposed structures, roadways, parking areas and site boundaries;

b. Interior floor plans showing the layout, profile view and dimensions of the processing lines, interior unloading, sorting, storage and loading areas as well as other functional areas;

c. A plan identifying, locating and describing utilities which will service the facility including, but not limited to, the storm water drainage system, sanitary sewer system, water supply system and energy system; interface of the proposed facility with the existing utility systems;

5. When applicable, the following information shall be presented on plan sheets:

a. All information on existing site conditions map unless including this information leads to confusion with the data intended for display.

b. A survey grid with base lines and monuments to be used for field control.

c. All drainage patterns and surface water drainage control structures both within the area and at the site perimeter to include berms, ditches, sedimentation basins, pumps, sumps, culverts, pipes, inlets, velocity breaks, sodding, erosion matting, or other methods of erosion control.

d. Access roads and traffic flow patterns to and within the storage and transfer areas.

e. All temporary and permanent fencing.

f. The methods of screening such as berms, vegetation or special fencing.

g. Wastewater collection, control and treatment systems which may include pipes, manholes, trenches, berms, collection sumps or basins, pumps, and risers.

h. Special waste handling areas.

i. Construction notes and references to details.

j. Other appropriate site features.

6. Detailed drawings and typical sections for, as appropriate, drainage control structures, access roads, fencing, buildings, signs, and other construction details.

B. Design report. A design report for the facility is required and will provide the technical details and specifications necessary to support the design plans consisting of, at least, the following information:

1. The introduction to the design report shall identify the project title; engineering consultants; site owner, licensee and operator; site life and capacity; municipalities, industries and collection and transportation agencies served; and waste types to be disposed. It shall also identify any exemptions desired by the applicant.

2. The design capacity specifications shall include, at a minimum, the following information:

a. The rated capacity of the facility, in both tons per day and tons per hour;

b. The expected short term and projected future long term daily loadings;

c. The designation of normal loading, unloading and storage areas, including capacities in cubic yards and tons. Description of the time such areas can be practically used, based on expected short term daily loadings;

d. The designation of emergency loading, unloading, storage or other disposal capabilities to be used when facility system down time exceeds 24 hours;

e. The designation of alternate management facilities or plans for transfer of stored waste in the event facility system down time exceeds 72 hours;

3. The design specifications for process residues to include the following:

a. The expected daily quantity of waste residue generations;

b. The proposed ultimate disposal location for all facility-generated waste residues including, but not limited to, ash residues and by-pass material, residues resulting from air pollution control devices, and the proposed alternate disposal locations for any unauthorized waste types, which may have been unknowingly accepted. The schedule for securing contracts for the disposal of these waste types at the designated locations shall be provided;

c. A descriptive statement of any materials use, reuse, or reclamation activities to be operated in conjunction with the facility, either on the incoming solid waste or the ongoing residue;

4. A descriptive statement and detailed specification of the proposed onsite and offsite transportation system intended to service vehicles hauling waste to the facility for processing, and vehicles removing reclaimed materials and or process residues from the facility. Onsite parking, access and exit points, and the mechanisms or features which will be employed to provide for an even flow of traffic into, out of, and within the site, shall be identified.

5. A detailed analysis shall be made of the financial responsibility for the time of site closing.

6. An appendix to the design plan shall be submitted which shall include any additional data not previously presented, calculations, material specifications, operating agreements, wastewater treatment agreements, documents related to long-term care funding and other appropriate information.

~~C. The results of a waste supply analysis program characterizing the quantity and composition of the solid waste in the service area shall be submitted. The waste characterization shall be performed by utilizing a statistically relevant plan which justifies the population sample. The sampling program shall provide for seasonal fluctuations in the quantity and composition of the waste types to be handled at the facility. Anticipated changes in solid waste quantity and composition for each of the waste types to be serviced by the proposed facility shall be projected for that term reflecting anticipated facility life. Within this framework, the effect of existing or future source separation programs on the supply of solid waste within the service area shall be described and quantified. Quantity and compositions analyses shall be carried out simultaneously where possible and shall provide information relating to anticipated maximum, minimum and average daily loading.~~

~~D.~~ C. Operations manual. The operations manual shall provide the detailed procedures by which the operator will implement the design plans and specifications. At a minimum, the operations manual shall include:

1. Daily operations including a discussion of the timetable for development, waste types accepted or excluded, typical waste handling techniques, hours of operation, traffic routing, drainage and erosion control, windy, wet and cold weather operations, fire protection equipment, manpower, methods for handling of any unusual waste types, methods for vector, dust and odor control, daily cleanup, salvaging, record keeping, parking for visitors and employees, monitoring, backup equipment with names and telephone numbers where equipment may be obtained, and other special design features. This may be developed as a removable section to improve accessibility for the site operator.

2. Site closing information consisting of a discussion of the anticipated sequence of events for site closing and discussion of those actions necessary to prepare the site for long-term care and final use.

3. Long-term care information including a discussion of the procedures to be utilized for the inspection and maintenance of run-off control structures, erosion damage, wastewater control, and other long-term care needs as required by the specific facility design.

~~E.~~ D. An emergency contingency plan which delineates procedures for responding to fire, explosions or any unplanned sudden or non-sudden releases of harmful constituents to the air, soil, or surface or ground water shall be submitted to the department as part of the Part B application. Before submission to the department it will be coordinated with the local police and fire departments, and the appropriate health care facility. The contingency plan shall contain;

1. A description of the actions facility personnel shall take in the event of various emergency situations;

2. A description of arrangements made with the local police and fire department which allow for immediate entry into the facility by their authorized representatives should the need arise, such as in the case of response personnel responding to an emergency situation; and

3. A list of names, addresses and phone numbers (office and home) of all persons qualified to act as an emergency coordinator for the facility. Where more than one person is listed, one shall be named as primary emergency coordinator and the other shall be listed in the order in which they will assume responsibility as alternates.

~~F.~~ E. Closure plan. The applicant shall prepare and submit a detailed plan for closing any SWMF. Such a plan shall be prepared to reflect the actions required at any point in the life of the facility and at the time of closing the facility. The plan should reflect all steps necessary to isolate the facility from the environment or to remove and dispose of all solid waste and residue in the facility. The closure plan should reflect all actions necessary for facility abandonment or uses other than for solid waste management.

~~G.~~ F. When required by the director, the applicant shall survey, record and submit background sound level data in the vicinity of the proposed facility at the time of application for a permit.

9 VAC 20-80-570. Recording and reporting required of a permittee.

A. A permit may specify:

1. Required monitoring, including type, intervals and frequency, sufficient to yield data which are representative of the monitored activity;

2. Requirements concerning the proper use, maintenance, and installation of monitoring equipment or methods, including biological monitoring methods when appropriate; and

3. Applicable reporting requirements based upon the impact of the regulated activity and as specified in this chapter.

B. A permittee shall be subject to the following whenever monitoring is required by the permit:

1. The permittee shall retain records at the permitted facility or another location approved by the director. Records shall include all records required by the facility permit, these regulations or other applicable regulations. Records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation will be maintained for at least three years from the sample or measurement date. The director may request that this period be extended. For landfill operations, records of the most recent gas and groundwater monitoring event will be maintained at the facility.

2. Records of monitoring information shall include:

a. The date, exact place and time of sampling or measurements;

b. The individuals who performed the sampling or measurements;

c. The dates analyses were performed;

d. The individuals who performed the analyses;

e. The analytical techniques or methods used; and

f. The results of such analyses.

3. Monitoring results shall be maintained on file for inspection by the department.

C. A permittee shall be subject to the following reporting requirements:

1. Written notice of any planned physical alterations to the permitted facility, unless such items were included in the plans and specifications or operating plan approved by the department, shall be given to the director and approved before such alterations are to occur.

2. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the permit, shall be submitted no later than 14 days following each schedule date.

3. The permittee shall report to the department any noncompliance or unusual condition which may endanger health or environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within five days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and, if the noncompliance has not been corrected, the anticipated time it is expected to continue. It shall also contain steps taken or planned to reduce, eliminate and prevent reoccurrence of the noncompliance.

4. The permittee shall submit groundwater monitoring reports if required by Part V of this chapter.

D. Copies of all reports required by the permit, and records of all data used to complete the permit application must be retained by the permittee for at least three years from the date of the report or application. The director may request that this period be extended.

E. When the permittee becomes aware that he failed to submit any relevant facts or submitted incorrect information in a permit application or in any report to the director, he shall promptly submit such omitted facts or the correct information with an explanation.

9 VAC 20-80-580. Permit denial.

A. A permit shall be denied if:

1. The applicant fails to provide complete information required for an application;

2. The facility does not conform with the siting standards set forth for the facility in Part V or Part VI of this chapter unless an exemption or variance from the specific siting criteria has been granted;

3. The facility design and construction plans or operating plans, or both, fail to comply with requirements specified for the proposed type of facility unless an exemption or variance from the specific requirement has been granted;

4. The department finds that there is an adverse impact on the public health or the environment by the design, construction or operation will result; or

5. The applicant is not able to fulfill the financial responsibility requirements specified in the Virginia Waste Management Board financial assurance regulations.

6. Current information sufficient to make the determination required in §10.1-1408.1 D of the Code of Virginia has not been provided.

B. Reasons for the denial of any permit shall be provided to the applicant in writing by the executive director within 30 days of the decision to deny the permit.

9 VAC 20-80-620. Amendment of permits.

A. Permits may be amended at the request of any interested person or upon the director ‘s initiative. However, permits may only be amended for the reasons specified in subsections E and F of this section. All requests shall be in writing and shall contain facts or reasons supporting the request. 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

B. If the director decides the request is not justified, he shall send the requester a ~~brief~~ response ~~giving a reason~~ providing justification for the decision.

C. If the director tentatively decides to amend he shall prepare a draft permit incorporating the proposed changes. The director may request additional information and may require the submission of an updated permit application. In a permit amendment under subsection E of this section, only those conditions to be amended shall be reopened when a new draft permit is prepared. All other aspects of the existing permit shall remain in effect. During any amendment proceeding the permittee shall comply with all conditions of the existing permit until the amended permit is issued.

D. When the director receives any information, he may determine whether or not one or more of the causes listed for amendment exist. If cause exists, the director may amend the permit on his own initiative subject to the limitations of subsection E of this section and may request an updated application if necessary. If a permit amendment satisfies the criteria in subsection F of this section for minor amendments, the permit may be amended without a draft permit or public review. Otherwise, a draft permit shall be prepared and other appropriate procedures followed.

E. Causes for amendment. The director may amend a permit upon his own initiative or at the request of a third party:

1. When there are material and substantial alterations or additions to the permitted facility or activity which occurred after permit issuance which justify the application of permit conditions that are different or absent in the existing permit;

2. When there is found to be a possibility of pollution causing significant adverse effects on the air, land, surface water or ground water;

3. When an investigation has shown the need for additional equipment, construction, procedures and testing to ensure the protection of the public health and the environment from adverse effects;

4. If the director has received information pertaining to circumstances or conditions existing at the time the permit was issued that was not included in the administrative record and would have justified the application of different permit conditions, the permit may be amended accordingly if in the judgment of the director such amendment is necessary to prevent significant adverse effects on public health or the environment;

5. When the standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued;

6. When the director determines good cause exists for amendment of a compliance schedule, such as an act of God, strike, flood, or material shortage or other events over which the permittee has little or no control and for which there is no reasonably available remedy;

7. When an amendment of a closure plan is required under Part V (9 VAC 20-80-240 et seq.) or Part VI (9 VAC 20-80-320 et seq.) of this chapter and the permittee has failed to submit a permit amendment request within the specified period;

8. When the corrective action program specified in the permit under 9 VAC 20-80-310 has not brought the facility into compliance with the ground water protection standard within a reasonable period of time; or

9. When cause exists for revocation under 9 VAC 20-80-600 and the director determines that an amendment is more appropriate.

F. Permit modification or amendment at the request of the permittee.

1. Minor modifications and permit amendments.

a. Except as provided in subdivisions b and c of this subsection, the permittee may put into effect minor modifications listed in ~~Appendix 7.4~~ Table 7.1 under the following conditions:

(1) The permittee shall notify the director concerning the modification by certified mail or other means that establish proof of delivery at least 14 calendar days before the change is put into effect. This notice shall specify

the changes being made to permit conditions or supporting documents referenced by the permit and shall explain why they are necessary. Along with the notice, the permittee shall provide the applicable information required by 9 VAC 20-80-510 and 9 VAC 20-80-520, 9 VAC 20-80-530, or 9 VAC 20-80-540.

(2) The permittee shall send a notice of the modification to the governing body of the county, city or town in which the facility is located. This notification shall be made within 90 calendar days after the change is put into effect. For the minor modifications that require prior director approval, the notification shall be made within 90 calendar days after the director approves the request.

b. Minor permit modifications identified in ~~Appendix 7.4~~ Table 7.1 by an asterisk may be made only with the prior written approval of the director.

c. The permittee may request the director to approve a modification that will result in a facility that is more protective of the health and environment than this chapter requires. The request for such a minor permit modification will be accompanied by a description of the desired change and an explanation of the manner in which the health and environment will be protected in a greater degree than the chapter provides for.

2. (Reserved.)

3. Major amendments.

a. For major modifications listed in ~~Appendix 7.4~~ Table 7.1, the permittee shall submit a amendment request to the director that:

(1) Describes the exact change to be made to the permit conditions and supporting documents referenced by the permit;

(2) Identifies that the modification is a major amendment;

(3) Explains why the amendment is needed;

(4) Provides the applicable information required by 9 VAC 20-80-510 and 9 VAC 20-80-520, 9 VAC 20-80-530, or 9 VAC 20-80-540.

b. No later than 90 days after receipt of the notification request, the director will determine whether the information submitted under subdivision 3 a (4) of this subsection is adequate to formulate a decision. If found to be inadequate, the permittee will be requested to furnish additional information within 30 days of the request by the director to complete the amendment request record. The 30-day period may be extended at the request of the applicant. After the completion of the record, the director will either:

(1) Approve the amendment request, with or without changes, and draft a permit amendment accordingly; or

(2) Deny the request; or

(3) Approve the request, with or without changes, as a temporary authorization having a term of up to 180 days in accordance with subdivision 5 of this subsection.

c. If the director proposes to approve the permit amendment, he will proceed with the permit issuance in accordance with 9 VAC 20-80-500 E.

d. The director may deny or change the terms of a major permit amendment request under subdivision 3 b of this subsection for the following reasons:

(1) The amendment request is incomplete;

(2) The requested amendment does not comply with the appropriate requirements of Part V or Part VI of this chapter or other applicable requirements; or

(3) The conditions of the amendment fail to protect human health and the environment.

4. Other amendments.

a. In the case of modifications not explicitly listed in ~~Appendix 7.4~~ Table 7.1, the permittee may submit a major amendment request, or he may request a determination by the director that the modification should be reviewed and approved as a minor amendment. If the permittee requests that the modification be classified as a minor amendment, he shall provide the department with the necessary information to support the requested classification.

b. The director will make the determination described in subdivision 4 a of this subsection as promptly as practicable. In determining the appropriate classification for a specific modification, the director will consider the similarity of the modification to other modifications in ~~Appendix 7.4~~ Table 7.1 and the following criteria:

(1) Minor modifications apply to minor changes that keep the permit current with routine changes to the facility or its operation. These changes do not substantially alter the permit conditions or reduce the capacity of the facility to protect human health or the environment. In the case of minor modifications, the director may require prior approval.

(2) (Reserved.)

(3) Major amendments substantially alter the facility or its operation.

5. Temporary authorizations.

a. Upon request of the permittee, the director may, without prior public notice and comment, grant the permittee a temporary authorization in accordance with the requirements of subdivision 5 of this subsection. Temporary authorizations shall have a term of not more than 180 days.

b. (1) The permittee may request a temporary authorization for any major amendment that meets the criteria in subdivision 5 c (2) (a) or (b) of this subsection; or that meets the criteria in subdivisions 5 c (2) (c) and (d) of this subsection and provides improved management or treatment of a solid waste already listed in the facility permit.

(2) The temporary authorization request shall include:

(a) A description of the activities to be conducted under the temporary authorization;

(b) An explanation of why the temporary authorization is necessary; and

(c) Sufficient information to ensure compliance with Part V or Part VI standards.

(3) The permittee shall send a notice about the temporary authorization request to all persons on the facility mailing list. This notification shall be made within seven days of submission of the authorization request.

c. The director shall approve or deny the temporary authorization as quickly as practical. To issue a temporary authorization, the director shall find:

(1) The authorized activities are in compliance with the standards of Part V or Part VI of this chapter.

(2) The temporary authorization is necessary to achieve one of the following objectives before action is likely to be taken on an amendment request:

(a) To facilitate timely implementation of closure or corrective action activities;

(b) To prevent disruption of ongoing waste management activities;

(c) To enable the permittee to respond to sudden changes in the types or quantities of the wastes managed under the facility permit; or

(d) To facilitate other changes to protect human health and the environment.

d. A temporary authorization may be reissued for one additional term of up to 180 days provided that the permittee has requested a major permit amendment for the activity covered in the temporary authorization, and the director determines that the reissued temporary authorization involving a major permit amendment request is warranted to allow the authorized activities to continue while the amendment procedures of subdivision 3 of this subsection are conducted.

6. Appeals of permit amendment decisions. The director’s decision to grant or deny a permit amendment request under subsection F of this section may be appealed under the case decision provisions of the Virginia Administrative Process Act (§ 9-6.14:1 et seq. of the Code of Virginia).

7. Newly defined or identified wastes. The permittee is authorized to continue to manage wastes defined or identified as solid waste under Part III (9 VAC 20-80-140 et seq.) of this chapter if:

a. He was in existence as a solid waste management facility with respect to the newly defined or identified solid waste on the effective date of the final rule defining or identifying the waste; and

b. He is in compliance with the standards of Part V or VI of this chapter, as applicable, with respect to the new waste, submits a minor modification request on or before the date on which the waste becomes subject to the new requirements; or

c. He is not in compliance with the standards of Part V or VI of this chapter, as applicable, with respect to the new waste, also submits a complete permit amendment request within 180 days after the effective date of the definition or identifying the waste.

G. Facility siting. The suitability of the facility location will not be considered at the time of permit amendment unless new information or standards indicate that an endangerment to human health or the environment exists which was unknown at the time of permit issuance.

~~APPENDIX 7.1~~

~~DISCLOSURE FORM~~

~~Notice~~

~~Under § 7(b) of the Privacy Act of 1974, 5 USC § 552a (note), any government agency which requests an individual to disclose his Social Security Account Number (SSAN) must inform that individual whether the disclosure is mandatory or voluntary, by what statutory or other authority such number is solicited, and what uses will be made of it.~~

~~The department is directed to request SSANs by § 10.1-1400 of the Code of Virginia, as specified in the paragraph defining the disclosure statement. The SSAN is used as a secondary identifier by the director when he determines that a criminal records check of the key personnel will be obtained pursuant to § 10.1-1405 D of the Code of Virginia. The SSAN will then be used to ensure correct identification when information is solicited from outside sources to determine whether the individual named in the records and the individual under consideration are the same or different persons.~~

The listing of SSANs on the disclosure forms is voluntary. Under Section 7(a) of the Privacy Act, the department cannot deny or revoke a permit or impose any penalty because of an individual's refusal to disclose SSAN. However, the absence of such number as a secondary identifier may delay processing of permit applications because of the additional investigative time that may be necessary to confirm identifications. In addition, there is the possibility that the absence of a SSAN may result in the initial identification of an individual as having a criminal record which actually is that of another person. That, again, may result in delay in the processing of the permit application.

APPENDIX 7.2

REQUEST FOR LOCAL GOVERNMENT CERTIFICATION

NOTE: The Request for Local Government Certification form was developed for the convenience of the permit applicant and the local governmental body. Its use is voluntary and the information required by the regulations may be presented by the permit applicant in any format of his choice.

APPENDIX 7.3

PART A PERMIT APPLICATION

NOTE: The Part A Permit Application was developed for the convenience of the permit applicant. Its use is voluntary and the information required by the regulations may be presented by the permit applicant in any format of his choice.

H. Classification of permit amendments. The following section provides a table outlining the classification of a permit amendment based on the type of modifcation being made to the permit. If a modification is not specifically provided in Table 7.1, the applicant may request the classification of a permit amendment in accoordance with the procedures in subdivision F 4 of this subsection.

~~APPENDIX7.4~~ Table 7.1

CLASSIFICATION OF PERMIT AMENDMENTS

Modifications	Classification
A. General permit provision	
1. Administrative and informational changes	Minor
2. Correction of typographical errors	Minor
3. Equipment replacement or upgrading with functionally equivalent components	Minor
4. Changes in the frequency of or procedures for monitoring, reporting, or sampling by the permittee, with prior approval by the director	* Minor
5. Schedule of compliance:	
a. Changes in interim compliance dates, with prior approval of the director	* Minor
b. Extension of the final compliance date	*Minor
6. Changes in ownership or operational control of a facility, with prior approval by the director	* Minor
B. General facility standards	
1. Changes in procedures in the operating plan	
a. That do not affect environmental protection afforded	Minor
b. Other changes	Major
2. Changes in frequency or content of inspection schedules, with prior approval by the director	* Minor
3. Changes in the training plan, with prior approval by the director	*Minor
4. Contingency plan:	
a. Changes in emergency procedures (i.e., spill or release response procedures), with prior approval by the director	* Minor
b. Replacement with functionally equivalent equipment, upgrade, or relocate emergency equipment listed	Minor
c. Removal of equipment from emergency equipment list, with prior approval by the director	* Minor

d. Changes in name, address, or phone number of coordinators or other persons or agencies identified in the plan	Minor
C. Ground water protection	
1. Changes to wells:	
a. Changes in the number, location, depth, or design of upgradient or downgradient wells of permitted ground water monitoring system	*Minor
b. Replacement of an existing well that has been damaged or rendered nonoperable, without change to location, design, or depth of the well	Minor
2. Changes in ground water sampling or analysis procedures or monitoring schedule, with prior approval of the director	* Minor
3. Changes in the point of compliance	Major
4. Changes in analytical parameters, constituents, or alternate concentration limits:	
a. As specified in the detection monitoring program	* Minor
b. Changes in established alternate concentration limits	* Minor
5. Changes to detection or assessment monitoring programs, unless otherwise specified in this appendix	* Minor
6. Corrective action program	
a. Implementation of a corrective action program as required by 9 VAC 20-80-310	Major
b. Changes to a corrective action program	Major
7. Groundwater monitoring plan for an existing facility where no written plan has previously been provided.	Major
D. Closure	
1. Changes to the design of cover	Major
2. Creation of a new landfill unit as part of closure	Major
3. Addition of the new storage or treatment units to be used temporarily for closure activities	Major
E. Changes during the post-closure period	
1. Changes in name, address, or phone number of contact in post-closure plan	Minor
2. Extension of post-closure care period	* Minor

3. Reduction in the post-closure care period	Major
4. Changes to the expected year of final closure, where other permit conditions are not changed	Minor
5. Changes in post-closure use of the property:	
a. Without disturbance of the cover	* Minor
b. With disturbance of the cover	Major
F. Leachate collection systems	
1. Addition of new tank units	*Minor
2. Modification of an existing tank unit	* Minor
3. Replacement of an existing tank with a tank that meets the same design standards and has a capacity within +/- 10% of the replaced tank	Minor
4. Modification of a tank management practice	Minor
5. Addition of surface impoundment units	Major
6. Replacement of a surface impoundment unit	Major
7. Modification of a surface impoundment unit without modifying the unit's liner, leak detection system, or leachate collection system	Major
8. Modification of a tank that does not affect the structural or containment characteristics	* Minor
9. All other modifications of a tank or a surface impoundment	Major
G. Gas collection and control systems	*Minor
H. Waste disposal facilities (landfills)	
1. Addition of new landfill units	Major
2. Lateral expansion or increase in the capacity of existing units	Major
3. Addition or modification of a liner, leachate collection system, leachate detection system, run-off control, or final cover system	Major
4. Modification of a landfill unit without changing a liner, leachate collection system, leachate detection system, run-off control, or final cover system	* Minor
5. Modification of a landfill management practice	* Minor
6. Landfill additional or different wastes	

a. That require additional or different waste handling practices, different design of the liner, leachate collection system, or leachate detection system	Major
b. That do not require additional or different waste handling practices, different design of the liner, leachate collection system, or leachate detection system	* Minor

Note: See 9 VAC 20-80-620 F 7 for amendment procedures to be used for the management of newly defined or identified wastes.

I. All other facilities

1. Changes to increase the waste handling capacity authorized in the permit	* Minor
2. Modification of the facility in a manner that would not likely affect the capability of the unit to meet the regulatory performance standards but which would change the operating conditions or monitoring requirements specified in the permit	* Minor
3. Modification of any inspection or recordkeeping requirement specified in the permit	* Minor
4. Management of different wastes:	
a. If the waste contains special wastes subject to requirements of Part VIII (9 VAC 20-80-630 et seq.) of this chapter not authorized by the permit and if the management of the waste requires compliance with different regulatory performance standards than specified in the permit.	Major
b. If the waste does not contain special wastes subject to requirements of Part VIII of this chapter or if the management of the waste does not require compliance with different regulatory performance standards than specified in the permit.	* Minor

Note: See 9 VAC 20-80-620 F 7 for amendment procedures to be used for the management of newly identified wastes.

*Minor permit modifications identified in this appendix by an asterisk may be made only with the prior written approval of the director (see 9 VAC 20-80-620 F 1 b).

PART VIII.

SPECIAL WASTES.

9 VAC 20-80-650. Wastes containing polychlorinated biphenyls (PCBs).

A. Definitions. The definitions provided in this subsection are derived from definitions in 40 CFR 761.3 and are provided here for the convenience of the regulated community. The definitions here have been altered from those appearing in the federal regulation in order to simplify the definitions to indicate the specific types of items that can or cannot be considered for disposal in a sanitary landfill. These definitions are not identical to the federal definitions. All terms that are used in this section and that are not defined in this subsection shall have the same meaning as in Part I (9 VAC 20-80-10 et seq.) of this chapter or 40 CFR 761.3 as applicable. Nothing in this section shall be deemed to allow management other than as required by federal law and regulation.

"PCB bulk product waste" means:

1. Non-liquid bulk wastes or debris from the demolition of buildings and other man-made structures manufactured, coated, or serviced with PCBs. PCB bulk product waste does not include debris from the demolition of buildings or other man-made structures that is contaminated by spills from regulated PCBs which have not been disposed of, decontaminated, or otherwise cleaned in accordance with 40 CFR Part 761 Subpart D.

2. PCB containing wastes from the shredding of automobiles, household appliances, or industrial appliances where PCB small capacitors have been removed (shredder fluff).

3. Plastics (such as plastic insulation from wire or cable; radio, television and computer casings; vehicle parts; or furniture laminates); preformed or molded rubber parts and components; applied dried paints, varnishes waxes or similar coatings or sealants; Galbestos.

"PCB cleanup waste" means non-liquid cleaning materials and personal protective equipment at any concentration including non-porous surfaces and other non-liquid materials such as rags, gloves, booties, other disposable personal protective equipment, and similar materials.

"PCB-Contaminated Electrical Equipment" means any electrical equipment including, but not limited to, transformers (including those used in railway locomotives and self-propelled cars), capacitors, circuit breakers, reclosers, voltage regulators, switches (including sectionalizers and motor starters), electromagnets, and cable, that contains PCBs at concentrations of $\geq$50 ppm and <500 ppm in the contaminating fluid. In the absence of liquids, electrical equipment is PCB-Contaminated if it has PCBs at >10 µg/100 cm^2 and <100 µg/100 cm^2 as measured by a standard wipe test (as defined in 40 CFR 761.123) of a non-porous surface.

"PCB remediation waste" means soil, rags, and other debris generated as a result of any PCB spill cleanup, including, but not limited to:

1. Environmental media containing PCBs, such as soil and gravel; dredged materials, such as sediments, settled sediment fines, and aqueous decantate from sediment.

2. Sewage sludge containing <50 ppm PCBs; PCB sewage sludge; commercial or industrial sludge contaminated as the result of a spill of PCBs including sludges located in or removed from any pollution control device; aqueous decantate from an industrial sludge.

3. Buildings and other man-made structures, such as concrete or wood floors or walls contaminated from a leaking PCB or PCB-Contaminated transformer, porous surfaces and nonporous surfaces.

B. Solid wastes containing PCB concentrations between 1.0 ppm and 50 ppm are restricted to disposal in sanitary landfills or industrial waste landfills with leachate collection, liners, and appropriate ground water monitoring as required in Part V (9 VAC 20-80-240 et seq.) of this chapter, except as allowed in subsection C of this section.

C. Other PCB Wastes.

1. PCB bulk product wastes with concentrations above 50 ppm may be approved for disposal by the director on a case-by-case basis. Submissions prepared for the director's decision will include a description of the PCB waste indicating the material proposed for disposal and how the federal regulations under 40 CFR 761.62 apply to the material. Consistent with the procedures in 40 CFR Part 761, PCB bulk product wastes that are shredder fluff or plastics as defined above need not be tested for PCBs prior to disposal. However, other PCB bulk product waste that has been sampled in accordance with the protocols set out in 40 CFR Part 761 Subpart R and may be considered for disposal if the waste leaches PCBs at less than 10 µg/L of water measured using a procedure used to simulate leachate generation. Requests for a director's determination must come from a permitted landfill. Alternatively, a landfill may modify its permit to incorporate a special waste acceptance plan which addresses PCB wastes. Facilities requesting to receive PCB bulk product waste must also meet the following provisions:

a. The unit to receive the waste must have a liner system meeting the requirements of 9 VAC 20-80-250 B 9 or an alternate liner approved under the provisions of 9 VAC 20-80-780.

b. The unit to receive the waste must have a leachate collection system consistent with 9 VAC 20-80-290.

c. Ground water monitoring may not have detected ~~Appendix~~ Table 5.1 constituents above the maximum contaminant levels (MCLs) promulgated under § 141.2 of the Safe Drinking Water Act (40 CFR Part 141 Subpart B) during the active life of the facility.

2. Consistent with 40 CFR Part 761, PCB articles such as PCB-contaminated electrical equipment, PCB hydraulic machines, or pipe that have previously contained PCB, which have been drained, may be disposed of in a sanitary landfill with leachate collection, liners, and appropriate ground water monitoring as required in Part V of this chapter. PCB testing, draining and other preparation for disposal of the equipment, if required, will be consistent with 40 CFR Part 761.

D. Consistent with 40 CFR Part 761, PCB remediation waste with PCB concentrations ≥50 ppm may not be disposed of in a sanitary landfill. PCB remediation waste includes but is not limited to items such as soil, sediments, dredged materials, muds, and sludge. PCB cleanup waste as defined above may be disposed of in a sanitary landfill with liners and a leachate collection system.

9 VAC 20-80-670. Tires.

A. Unless exempt under 9 VAC 20-80-60 D 11 or 9 VAC 20-80-160 A 6, owners or operators of a waste tire storage unit or facility, to include sites engaged in speculative accumulation, shall obtain a permit in accordance with standards contained in 9 VAC 20-80-340 or 9 VAC 20-80-400, as appropriate.

B. Owners or operators of units or facilities that store waste tires in containers such as trailers shall, in addition to requirements contained in 9 VAC 20-80-340:

1. Establish and maintain a contractual agreement for prompt removal of the waste tires from the facility;

2. Obtain approval for the storage area from the local fire marshall <u>if required</u>;

3. Include in the contingency plan required under 9 VAC 20-80-340 D 3 a section that describes actions that will be taken in response to a fire or release of product of combustion which would threaten human health or the environment. The plan shall also provide for the worst case contingency such as a fire at the facility when its inventory is at its maximum capacity. Consideration must be provided regarding on-site water supply, access routes to the site, security, alarms, training, drills and on-site protection equipment; and

4. Not store waste tires in excess of the quantity specified in the permit.

C. Owners or operators of facilities that store or treat waste tires in piles shall, in addition to the requirements contained in 9 VAC 20-80-400:

1. Place the waste tires in piles that:

a. Do not exceed five feet in height;

b. Do not exceed 5,000 square feet in base surface area; and

c. Do not exceed 50 feet in width.

2. Provide a minimum separation distance of 50 feet between waste tire piles and between waste pile and any structure. These separation areas shall be maintained free of obstructions and maintained in such a manner that emergency vehicles will have adequate access to all waste tire management areas.

3. Unless the waste tire pile is located at a disposal facility regulated under 9 VAC 20-80-250 or 9 VAC 20-80-260:

a. Provide a berm of soil between all waste tire piles in the storage area. The berm shall extend as high as the height of the waste tire pile;

b. In addition to any material in the berm, for each waste tire pile, provide and maintain a stockpile of 20 cubic yards of soil within 200 feet of each pile; and

c. Provide a fence around the entire storage and treatment area to control access to the storage facility.

4. Include in the contingency plan required under 9 VAC 20-80-400 D 3 a section which describes actions that will be taken in response to a fire or release of product of combustion which would threaten human health or the environment. The plan shall also provide for the worst case contingency such as a fire at the facility when its inventory is at its maximum capacity. Consideration must be provided regarding on-site water supply, access routes to the site, security, alarms, training, drills and on-site protection equipment.

5. Not store waste tires in excess of the quantity specified in the permit.

D. More than 1,000 discarded tires shall not be stored at a solid waste disposal facility unless the permit for the facility expressly allows such storage. Tires disposed of in a sanitary or construction/demolition/ debris landfill shall be split, cut, or shredded before disposal and should be dispersed in the workface with other solid wastes. Alternate burial not incorporating cutting or splitting at a specific facility may be approved if the method will assure that tires will not emerge from the burial facility.

PART IX.

Rulemaking Petitions and Procedures.

9 VAC 20-80-760. Variance to ground water protection ~~levels~~ standards.

A. Application and conditions. The director may grant a variance to ground water protection ~~levels~~ standards contained in Part V (9 VAC 20-80-240 et seq.) of this chapter to an owner or operator of a solid waste disposal facility by establishing an alternate concentration limit for a solid waste constituent if the owner or operator shows to the satisfaction of the director that the constituent will not pose a substantial present or potential hazard to human health or the environment as long as the alternate concentration limit is not exceeded.

B. Basis for the decision. In establishing alternate concentration limits, the director will consider the following factors:

1. Potential adverse effects on ground water quality, considering:

a. The physical and chemical characteristics of the waste in the regulated unit, including its potential for migration;

b. The hydrogeological characteristics of the facility and surrounding land;

c. The quantity of ground water and the direction of ground water flow;

d. The proximity and withdrawal rates of ground water users;

e. The current and future uses of ground water in the area;

f. The existing quality of ground water, including other sources of contamination and their cumulative impact on the ground water quality;

g. The potential for health risks caused by human exposure to waste constituents using:

(1) Federal guidelines for assessing the health risks of environmental pollutants;

(2) Scientifically valid studies conducted in accordance with the Toxic Substances Control Act Good Laboratory Practice Standards (40 CFR Part 792) or equivalent;

(3) For carcinogens, concentrations associated with an excess lifetime cancer risk level (due to continuous lifetime exposure) with the 1×10^{-4} to 1×10^{-6} range; and

(4) For systemic toxicants, concentrations to which the human population (including sensitive subgroups) could be exposed to on a daily basis that is likely to be without appreciable risk of deleterious effects during a lifetime;

h. The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents;

i. The persistence and permanence of the potential adverse effects; and

2. Potential adverse effects on hydraulically connected surface water quality, considering:

a. The volume and physical and chemical characteristics of the waste in the regulated unit;

b. The hydrogeological characteristics of the facility and surrounding land;

c. The quantity and quality of ground water, and the direction of ground water flow;

d. The patterns of rainfall in the region;

e. The proximity of the regulated unit to surface waters;

f. The current and future uses of surface waters in the area and any water quality standards established for those surface waters;

g. The existing quality of surface water, including other sources of contamination and the cumulative impact on surface water quality;

h. The potential for health risks caused by human exposure to waste constituents using factors shown in subdivision 1 g of this subsection;

i. The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and

j. The persistence and permanence of the potential adverse effects.

3. In making any determination under this section, the director will consider any identification of underground sources of drinking water as identified by EPA under 40 CFR 144.8.

C. Effects of the decisions.

1. When the director renders a decision under this section in accordance with the procedures contained in 9 VAC 20-80-790, he may:

a. Deny the petition; or

b. Grant the alternate concentration limit as requested; or

c. Grant a modified alternate concentration limit.

2. When a variance is granted, the director may:

a. Specify additional or modified monitoring requirements; or

b. Include a schedule for:

(1) Periodic review of the alternate concentration limit; or

(2) Implementation by the facility of such control measures as the director finds necessary in order that the variance may be granted.

9 VAC 20-80-770. Variance to location of the ground water monitoring system.

A. The applicant may petition the director to approve a location for the ground water monitoring system other than at the waste management unit boundary as required by ~~9 VAC 20-80-250 D 3 a, 9 VAC 20-80-260 D 3 a, or 9 VAC 20-80-270 D 3 a~~, 9 VAC 20-80-300 A 3 a if he can demonstrate that the response time is sufficiently long to identify and remediate or otherwise contain ground water that may become impacted before it reaches the facility boundary. This alternate point of compliance with the ground water monitoring requirements shall be located within the facility boundary and shall not be located farther downgradient than 500 feet from the waste management unit boundary.

B. To be considered, the petition shall provide information on:

1. The hydrogeologic characteristics of the facility and surrounding land. The information shall include an estimate of the width and depth of a plume that may migrate from the disposal unit.

2. The volume and physical and chemical characteristics of the leachate.

3. The quality, quantity, and direction of ground water flow. This information shall include a determination whether contaminants from the unit will be detectable at the proposed point of compliance.

4. The proximity and withdrawal rate of the ground water users. This information shall include the estimate of time of travel to private or public supply wells.

5. The availability of alternate drinking water supplies in the event of a ground water contamination problem.

6. The existing quality of the ground water, including other sources of contamination and their cumulative impacts on the ground water and whether ground water is currently used or reasonably expected to be used for drinking water.

7. Practicable capability of the owner or operator. The information shall include an indication of financial capability of the owner or operator to maintain a longer and more costly corrective action program owing to the longer detection time frame associated with the proposed point of compliance.

C. Based on the information received the director will consider the potential overall effect on public health, welfare, and safety of the proposed point of compliance. Consideration will include:

1. Distance to the facility boundary and to the nearest ground water user or potentially affected surface water;

2. The response time required to remediate or otherwise contain ground water that may become impacted and potentially affect downgradient water supplies; and

3. Risk that detection may not be representative of worst case condition of the ground water.

9 VAC 20-80-780. Variance to the liner system design.

A. The director may grant a variance to the composite liner system design required by 9VAC20-80-250 B 9 if the owner or operator of the facility demonstrates to the satisfaction of the director that the proposed alternate liner system design

will ensure that the concentration values listed in ~~Appendix~~ Table 9.1 will not be exceeded in the uppermost aquifer at the waste management unit boundary.

B. The demonstration shall be based on the consideration of the following factors:

1. The hydrogeologic characteristics of the facility and surrounding land;

2. The climatic factors of the area;

3. The volume and physical and chemical characteristics of the leachate;

4. The quantity, quality, and direction, of flow of ground water;

5. The proximity and withdrawal rate of the ground water users;

6. The availability of alternative drinking water supplies;

7. The existing quality of the ground water, including other sources of contamination and their cumulative impacts on the ground water, and whether the ground water is currently used or reasonably expected to be used for drinking water;

8. Public health, safety, and welfare effects; and

9. Practicable capability of the owner or operator.

C. The demonstration shall be supported by the results of a mathematical modeling study based on the EPA MULTIMED model.[1] Other models may be used if accompanied by justification describing the reasons for inapplicability of the MULTIMED model.[2]

[1] Sharp-Hansen, S., C. Travers, P. Hummel, and T. Allison, A Subtitle D Landfill Application Manual for the Multimedia Exposure Assessment Model (MULTIMED), United States Environmental Protection Agency, Environmental Research Laboratory, Athens, Georgia (1990).

[2] For a listing and review of models see Travers, C.L., and S. Sharp-Hansen, Leachate Generation and Migration at Subtitle D Facilities: A Summary and Review of Processes and Mathematical Models, United States Environmental Protection Agency, Environmental Research Laboratory, Athens, Georgia (1991).

~~APPENDIX~~ TABLE 9.1

CONCENTRATION LEVELS FOR ALTERNATE LINER DESIGN

Chemical [1]	Concentration (mg/liter)
Arsenic	0.05
Barium	1.0
Benzene	0.005
Cadmium	0.01
Carbon tetrachloride	0.005
Chromium (hexavalent)	0.05
2,4-Dichlorophenoxy acetic acid	0.1
1,4-Dichlorobenzene	0.075
1,2-Dichloroethane	0.005
1,1-Dichloroethylene	0.007
Endrin	0.0002
Fluoride	4
Lindane	0.004
Lead	0.05
Mercury	0.002
Methoxychlor	0.1
Nitrate	10
Selenium	0.01
Silver	0.05
Toxaphene [2]	0.005
1,1,1-Trichloromethane	0.2
Trichloroethylene	0.005
2,4,5-Trichlorophenoxy acetic acid	0.01
Vinyl Chloride	0.002

[1] Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

[2] Toxaphene: This entry includes congener chemicals contained in technical toxaphene (CAS RN 8001-35-2), i.e., chlorinated camphene.

FORMS

Open Dump Evaluation Criteria Part I - Flood Plains, DWM Form SW-4-1.

Open Dump Evaluation Criteria Part II - Surface Water, DWM Form SW-4-2.

Open Dump Evaluation Criteria Part III - Groundwater, DWM Form SW-4-3.

Open Dump Evaluation Criteria Part IV - Disease Vectors, DWM Form SW-4-4.

Open Dump Evaluation Criteria Part V - Open Burning, DWM Form SW-4-5.

Open Dump Evaluation Criteria Part VI - Safety: Landfill Gas, DWM Form SW-4-6.

Open Dump Evaluation Criteria Part VII - Safety: Fires, DWM Form SW-4-7.

Open Dump Evaluation Criteria Part VIII - Safety: Bird Hazard, DWM Form SW-4-8.

Solid Waste Management Facility Permit Applicant's Disclosure Form, DWM Form DISC-01.

Solid Waste Management Facility Permit Applicant's Disclosure Form - Key Personnel, DWM Form DISC-02.

Request for Local Government Certification, DWM Form SW-11-1.

Part A Permit Application, DWM Form SW-7-3.

Solid Waste Information and Assessment Program - Reporting Table, DEQ Form 50-25 (rev. 6/00).

Annual Report Submission Checklist, DEQ Form ARSC-01 (11/01)

DOCUMENT INCORPORATED BY REFERENCE

Test Methods for Evaluation of Solid Waste, Physical/Chemical Methods, EPA Publication SW-846, 2nd Edition 1982, as amended by Update I (April 1984) and Update II (April 1985) and The Third Edition (November 1986) as amended.